

# Amateur Photographer

Passionate about photography since 1884



First look!  
**Canon EOS 5D Mk IV**  
30.4MP, 7 frames per sec, 4K video

## DSLR vs



# mirrorless

Head-to-head comparison

**Mirrorless myths busted**

Which system is best for you



### Fujifilm X-T2

Why Britain's top sports pro believes it's a game changer



### Travel masterclass

NatGeo shooter **Paul Ratje** on taking great candid shots



### Sony A7R II convert

**Martin Evening** ventures into the world of mirrorless

# Persue pefection with the latest addition to the Canon range of Full-Frame DSLRs

## EOS 5D Mark IV

No matter who you are, or what you're shooting, the EOS 5D Mark IV delivers uncompromising image quality and a professional performance.

Since the launch of the first, and now iconic, Canon EOS 5D over 11 years ago, a lot has changed in the photographic world, and all that has evolved has been packed into the brand new Canon 5D Mark IV.

The first 'affordable' full-frame sensor camera now has an impressive 30.4 Megapixel CMOS sensor, a considerable upgrade in the 5D Mark IV versus the Canon EOS 5D Mark III.



### BECAUSE THE DEVIL IS IN THE DETAIL

From the darkest shadow to the brightest highlight, a 30-megapixel CMOS sensor captures fine detail even in the toughest conditions, with a maximum native sensitivity of ISO 30,000. Shoot Dual Pixel RAW files for post-production adjustments like you've never seen before.



### PRECISION AS STANDARD

Stay focused, with an expanded 61-point AF system that tracks even the most erratic subjects, and that can be customised to every situation. Accurate exposures come from a metering system so advanced it has its own 150,000-pixel RGB+IR sensor.



### ENGINEERED TO PERFORM

In pursuit of the perfect moment, the EOS 5D Mark IV can shoot continuously at 7fps. Its viewfinder and user interface are highly customisable, with intuitive touch-screen operation offering new levels of camera control.



### STEP UP TO CINEMATIC 4K

Following in the footsteps of its predecessors, the EOS 5D Mark IV once again offers DSLR movie makers new ways in which to be creative. Capture 4K footage at 30fps, from which 8-MP still images can be extracted as JPEG files.



Body only  
**£3,199.00**

Lens sold separately.

30.4  
MEGA  
PIXELS

7fps

3.2"

61  
AF  
POINTS

4K

### See the EOS 5D Mark IV! Thursday 1st September

Be one of the first in the UK to see the EOS 5D Mark IV by visiting our London store and joining professional photographer **Jeff Ascough** as he shows you the benefits of using this camera!

Learn more & sign up for your free place at [www.parkcameras.com/events](http://www.parkcameras.com/events)



Learn more about the EOS 5D Mark IV and watch our first look video at

[www.parkcameras.com/eos-5d-mark-iv](http://www.parkcameras.com/eos-5d-mark-iv)

Pre-order / purchase from Park Cameras and you'll go into a draw to **WIN ONE OF FOUR PRIZES**  
giving you the opportunity to capture some great shots from Iconic locations

Draw closes 31.10.16.  
T&Cs apply



Take air-to-air shots of a spitfire



Excursion on the Belmond British Pullman



Two night deluxe break in Paris



Tickets for the London Eye / Brighton i360

Also recently announced!

Canon EF 16-35mm  
f/2.8L III USM



NEW!

Stock expected October 2016

See web for more  
information

Canon EF 24-105mm  
f/4L IS II USM



Stock expected October 2016

See web for more  
information

Canon BG-E20  
Battery Grip



Stock expected October 2016

See web for more  
information



Learn more about the 5D IV at  
[blog.parkcameras.com](http://blog.parkcameras.com)

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We photographers have a reputation for being obsessed with gear. Put three or four of us in a room together, and the conversation will soon turn to cameras and lenses. Currently no question is more vexed than whether the new breed of mirrorless CSCs can overturn the dominance of DSLRs. The arguments are well rehearsed: DSLR supporters highlight their sophisticated autofocus, long battery life and speed-of-light

# 7days

## A week in photography

optical viewfinders, while mirrorless converts sing the praises of lighter, more discreet systems and crisp, compact lenses.

This week we dissect the myths and misconceptions surrounding the debate, talking to pros about why they use a certain type of camera, and pitting a pair of enthusiast DSLR and mirrorless systems against each other in a practical shoot-out. Read on to find out which camera type is best for you.

**Andy Westlake, Technical Editor**

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## ONLINE PICTURE OF THE WEEK

### Selfie

by Nick Hall

Fujifilm X-Pro1, 50mm,  
1/900sec at f/5.6, ISO 250

AP reader Nick Hall uploaded this shot to our Flickr pool. It's a good example of an interesting street photography picture, and of how light, shadow and silhouettes can be used to create strong graphic shots.

'The photograph was taken in Sintra, Portugal, where there are lots of day trippers from Lisbon,' says Nick. 'It was late afternoon and I was looking at light and shadows when this man stood up to take a selfie with his phone. There was something about taking a selfie and his mirrored sunglasses that connected, so I grabbed a shot without thinking too much.'

In next week's issue (AP 10 September) we'll show you how to apply the silhouettes technique in your own images.

IMAGES MAY BE USED FOR PROMOTION PURPOSES ONLINE AND ON SOCIAL MEDIA



### Win!

Each week we choose our favourite picture on Facebook, Flickr, Twitter, Instagram or the reader gallery using #appicoftheweek. PermaJet proudly supports the online picture of the week winner, who will receive a top-quality print of their image on the finest PermaJet paper. It is important to bring images to life outside the digital sphere, so we encourage everyone to get printing today! Visit [www.permajet.com](http://www.permajet.com) to learn more.

### Send us your pictures

If you'd like to see your work published in *Amateur Photographer*, here's how to send us your images:

Email Email a selection of low-res images (up to 5MB of attachments in total) to [appicturedesk@timeinc.com](mailto:appicturedesk@timeinc.com).

CD/DVD Send us a disc of high-resolution JPEG, TIFF or PSD images (at least 2480 pixels along its longest length), with a contact sheet, to the address on page 25.

Via our online communities Post your pictures into our Flickr group, Facebook page, Twitter feed, or the gallery on our website. See details above.

Transparencies/prints Well-packaged prints or slides (without glass mounts) should be sent by Special Delivery, with a return SAE, to the address on page 25.

## NEWS ROUND-UP

The week in brief, edited by Chris Cheesman

### Picture passion

Lara Platman has spoken of how she slept in an empty car trailer so she could be in place to capture night shots of the Le Mans 24 Hours race. Her resulting photos are on display until 9 September in 'Through the Night – The Passion of Motorsport', at Leica Store City, London EC3V 3LP.



© LARA PLATMAN

### 'Premium' photo book

Booked Images has expanded its line of hand-bound coffee-table photo books with the addition of a 'premium' option designed for professional photographic portfolios. The Ultra Book is

custom-made to order and features 'ultra-high-resolution' printing using LumeJet printers. Prices start from £189.

© NIGEL HUNSON

### Jockey turns shooter

Former champion jockey Richard Dunwoody (right) is forging a successful career as a travel photographer. He was a speaker at the 2016 Travel Photographer of the Year Summer Lectures in London.

Meanwhile, wildlife photographer Chris Weston and filmmaker Catherine Capon are due to cover 'Nature and Wildlife Photography and Conservation' on 3 September at 10 Stockwell Street, Greenwich (part of the University of Greenwich).



© RICHARD DUNWOODY



© ZEISS/JÜRGEN SCHERE

### Zeiss marks 200th birthday

Lens maker Carl Zeiss will mark the 200th birthday of its founding father on 11 September. Carl Zeiss was

born in Weimar, Germany, on 11 September 1816. The mechanic opened a small workshop in Jena in 1846, laying the foundations for the company. The firm plans to celebrate the anniversary with a number of events.

### Show time for photography masters

More than 400 photos by renowned photographers who use Leica cameras will go on show at the Photokina trade fair in Cologne, Germany, from 20-25 September. Contributors include Bruce Gilden, Alex Webb and Roger Ballen. There will be 15 series of images in total. Photokina is open to the photography trade and public. Visit [www.photokina.com](http://www.photokina.com).



© ARA GULER



© MURRAY CLOSE

## WEEKEND PROJECT

### Animals in zoos

Ideally, we'd all photograph wild animals in their natural habitat, but generally wild lions and tigers aren't exactly close at hand. For most people, the nearest they will get to exotic wild beasts is a visit to the zoo, where there is a captive audience (literally). The downside is that you can end up with a rather amateurish-looking zoo picture.

The first thing to consider when striving for better zoo shots is equipment. You need a decent interchangeable-lens camera and a choice of fast (wide-aperture) lenses, including a fast zoom. Flashguns are generally discouraged as they can upset the animals, but a bit of fill-in flash in bright sunlight should be OK. Always check the zoo's photography policy before you start.

**1** Photograph the animals in a natural-looking context, such as vegetation or water. Avoid fences and other zoo apparatus – this is easier in a safari park than in a city zoo. Look for the best angle and be prepared to change position.

**2** You might need to shoot through a fence. To blur out the wire, place the centre of your lens over spaces in the mesh (a lens hood can protect the glass) and use a long focal length and wide aperture. Then focus on the animal.

# BIG picture

Travel the length and breadth of iconic British photography

 London's Proud Chelsea has played host to some fairly iconic images and now's your chance to see a whole range. 'Image of an Icon' travels through the past century using a range of photographs that encapsulate the length and breadth of popular culture. You'll see images from renowned photographers, including Justin de Villeneuve, Michael Joseph and Murray Close, who took this image on the set of *Withnail and I* (1986) – a classic British film if ever there was one. In this image we see (l-r) Paul McGann, Richard Griffiths and Richard E Grant, the three actors who make up the core of the film. It's a strong portrait that really shows the threesome's dynamic, particularly in Grant's less than happy expression. The exhibition runs until 18 September. Visit [www.proudonline.co.uk](http://www.proudonline.co.uk).

## Words & numbers

*If your pictures aren't good enough, you aren't close enough*

Robert Capa

Legendary war photographer (1913-1954)

**95 million**  
Number of photos and videos uploaded to Instagram each day

SOURCE INSTAGRAM



**3** Capture animal behaviour and movement. Make sure the background is clean and focus carefully on the lead animal's eyes, using continuous AF to track movement. Fast shutter speeds/higher ISOs are often needed.

**4** Always think about perspective. Shoot from below to get imposing portraits of big cats, or above to give a sense of scale with smaller creatures. Never ignore safety rules to try to get closer to animals.



© ISTOCKPHOTO.COM/RICHARD DEBEE



The Nikon D3400 will sync images to mobile devices via Bluetooth, using SnapBridge technology



## Nikon reveals two DX zooms

NIKON has launched two 70-300mm 'super-telephoto', DX-format zooms, available in VR and non-VR versions.

Due in shops on 15 September, alongside the D3400 (see left), both feature Nikon's AF-P Stepping Motor – a system designed to allow smooth, fast and quiet autofocus, particularly useful when shooting video.

Kosuke Kawaura, director of marketing and planning at Nikon Inc, said: 'The... new series of Nikkor lenses demonstrates Nikon's commitment to providing affordable and versatile lens options to DX-format DSLR photographers looking to capture their own unique perspective of the world.'

The AF-P DX Nikkor 70-300mm f/4.5-6.3G ED will cost £299.99, while the AF-P DX Nikkor 70-300mm f/4.5-6.3G ED VR will cost £349.99.

The 'lightweight' lenses weigh 400g and 415g respectively.

# Nikon targets image sharers with the D3400

**NIKON** has unveiled the D3400, the company's first entry-level DSLR to boast SnapBridge technology that was announced earlier this year.

The DX-format Nikon D3400 is not Wi-Fi enabled, but photographers will be able to make use of SnapBridge to automatically sync their photos with a smartphone or tablet using Bluetooth, allowing them to be shared.

'Once paired, the D3400 will remain connected to the smart device and transfer photos automatically, without the need to re-connect the devices each time,' Nikon USA explained in a statement on 17 August.

'Those wanting to send photos from their child's graduation or a gorgeous sunset can either set all images to automatically download as they are captured, or tag individual images for transfer in-camera.'

The 24.2-million-pixel D3400 – Nikon's first DSLR since the D500 and the flagship D5 were announced in January – is due out on 15 September, priced £399.99 body only. One of the key features is an ISO range of 100-25,600 – a one-step improvement over the top native ISO of the Nikon D3300 that was launched more than two years ago.

For DSLR newcomers, there is a guide mode on the camera to help the photographer select the correct settings.

Also on board is full HD video. 'Even novice moviemakers can easily film with available light and make subjects stand out against beautiful background blur with a fast Nikkor lens,' Nikon UK claims.

Simon Iddon, head of product management at Nikon UK, added: 'The D3400 is an exciting new addition to the already successful D3000 series.'

'This small and fast DSLR inherits superior technology from Nikon's higher-end cameras whilst retaining the ease of use that Nikon's

entry-level range of cameras are known for.'

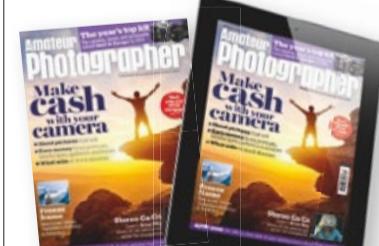
Nikon claims that the camera can capture up to 1,200 shots on a single charge.

Features also include an 11-point AF system, and a maximum five frames per second burst rate.

The D3400 uses an Expeed 4 image processor.

The D3400 will also be available with an 18-55mm AF-P lens, which will be priced £469.99, and with an 18-55mm AF-P VR lens, costing £489.99.

**Due in shops on 15 September, the new 'entry-level' D3400 DSLR will cost around £400**



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Reigate Photographic Society member Dave Lyon had his work exhibited at the Royal Academy of Arts Summer Exhibition



© DAVE LYON

## Club member stars at Royal Academy of Arts

A MEMBER of Reigate Photographic Society in Surrey won the right to exhibit his work at the Royal Academy of Arts Summer Exhibition.

The Royal Academy of Arts accepted Dave Lyon's image of waves crashing onto the harbour wall at Newhaven, East Sussex.

It was Dave's first-ever submission to the prestigious exhibition and one of only 1,200 works displayed by the Academy from 12,000 it received.

Dave, who endured

60mph winds during the shoot, described the news as 'fantastic'.

Commenting on the shot, he said: 'From past experience I knew these conditions could produce some fantastic coastal shots... and I wasn't disappointed.' He returned home to review his images and dry off.

'There were a lot of good shots of the storm, harbour and lighthouse, and then this one stood out.'

'The more I looked, the

more faces became apparent in the crashing waves and spray – making it the image of the day.'

Dave shot the photo in raw format and then processed it using Phase One's Capture One software, before importing it into Photoshop and converting it to monochrome.

The 52x41cm framed print sold for £250 at the exhibition, which took place this summer at the Royal Academy of Arts in Piccadilly, London.

## Stunning images capture extreme world weather

STUNNING photos depicting weather from around the world have been plucked from Weather Photographer of the Year 2016, giving the public a chance to vote for their favourite shots.

More than 800 images were submitted to the 2016 Weather Photographer of the Year competition, a contest organised by the Royal Meteorological Society and the Royal Photographic Society.

The shortlisted images show extreme weather such as lightning, plus the impact of weather on humans, cities and the natural landscape.

The best images are set to tour the UK



© GRAHAM NEWMAN

Judges included BBC weatherman Peter Gibbs, who said: 'The pictures take us on a world tour of stunning weather phenomena, from supercell thunderstorms in the US Midwest to Antarctic diamond dust via a mist-shrouded Welsh hillside.'

The overall winners will be announced on 10 September.

To view the shortlisted images, visit [www.weather-photo.org/events/weather-photographer-year](http://www.weather-photo.org/events/weather-photographer-year).

For the latest news visit [www.amateurphotographer.co.uk](http://www.amateurphotographer.co.uk)

## Get up & go

The most interesting things to see, to do and to shoot this week. By Oliver Atwell

LEEDS



© PETER DENCH

### Dench Does Dallas

In the summer of 2015, award-winning photojournalist Peter Dench was unleashed to photograph the iconic city of Dallas, Texas. His journey took him across the vast urban landscape, and his forensic eye reveals a place far removed from the fantasies of film and television. Dench Does Dallas is at The Gallery at Munro House.

12 September-22 October, [leedsgallery.com/whats-on/exhibitions](http://leedsgallery.com/whats-on/exhibitions)

CONWY



© NIALL McDIARMID

GLASGOW



© SIBYLLE BERGEMANN

### British Portraits

Niall McDiarmid spent five years travelling around Britain building up a contemporary portrait of the country. He has photographed more than 1,500 people in over 150 towns. The Oriel Colwyn gallery is showing more than 60 images.

Until 14 October, [orientcolwyn.org/british-portraits](http://www.orientcolwyn.org/british-portraits)

### Sibylle Bergemann

Sibylle Bergemann was a leading contemporary German photographer whose works are astonishingly diverse, such as reportage and landscapes. See her images at the Street Level Photoworks Gallery.

Until 25 September, <http://bit.ly/2b8IQwo>

DUBLIN



© ERWIN POLANC

### The Body Politic

The Body Politic exhibition, at The Gallery of Photography in Dublin, highlights the strength and diversity of contemporary photography in Austria. It reflects the concerns of five established and emerging photographic talents.

Until 28 September, [www.galleryofphotography.ie/exhibitions](http://www.galleryofphotography.ie/exhibitions)

### The Camera Exposed

The relationship between photographers and their cameras is the subject of a new exhibition at the Victoria and Albert Museum in London. It comprises over 120 images taken between the mid-19th century and today – and all have cameras in them.

Until 5 March 2017, [www.vam.ac.uk/exhibitions/the-camera-exposed](http://www.vam.ac.uk/exhibitions/the-camera-exposed)

LONDON



© ANDREAS FEININGER

# Canon EOS 5D Mark IV

The Canon EOS 5D Mark IV boasts a 30.4-million-pixel full-frame sensor and introduces Dual Pixel raw. **Michael Topham** studies it in detail

## At a glance

- 30.4MP CMOS sensor
- Dual DIGIC 6 and DIGIC 6+ processors
- ISO 100-32,000 (expandable to ISO 50-102,400)
- 7fps continuous shooting
- 61-point AF system with 41 cross-types
- 3.2in, 1.62-million-dot touchscreen
- Dual card slots (CompactFlash & SD)
- Built-in Wi-Fi, NFC and GPS
- £3,629 (body only)
- Available in September

### Shutter actuations

Similar to the EOS 5D Mark III, EOS 5DS and EOS 5DS R, the EOS 5D Mark IV has a shutter rated to 150,000 actuations.



### Weather sealing

Canon claims that better seals around the body of the camera have improved its weatherproofing.



### Mirror box assembly

The mirror box is similar to the one used in the EOS 5DS and 5DS R. It features a new cam to help eliminate mirror bounce.

### Metering

Metering promises to be more precise. It adopts Canon's 150,000-pixel RGB+IR metering sensor – as used in the EOS 7D Mark II, EOS 5DS and EOS 5DS R.



**IT'S BEEN** a long time coming, but Canon has finally introduced the EOS 5D Mark IV – successor to the best-selling EOS 5D Mark III. For a model that's been four years in the making and set to replace one of Canon's most successful DSLRs, we've been expecting some major developments.

#### The new specs

A new 30.4-million-pixel full-frame CMOS sensor replaces the 22.3-million-pixel CMOS sensor of old and provides a sensitivity range of ISO 100-32,000 that's expandable to ISO 50-102,400.

The EOS 5D Mark IV's sensor adopts Dual Pixel CMOS AF and is the second full-frame DSLR in Canon's line-up to feature this technology. Each microlens covers two photodiodes that can be read independently, and by measuring the difference in light that reaches each of

the two diodes, the EOS 5D Mark IV can perform on-sensor, phase-detection focusing in live view and when shooting video, in light as low as -4EV. But Canon has gone one step further and used it to develop an innovation called Dual Pixel raw. The idea is that this creates raw files that contain all the data recorded by the dual photodiodes per pixel, rather than combining their output. When these files are processed through Canon's Digital Photo Professional (DPP) software, users are given the option to perform one of three types of unique image adjustments. Image micro adjustment allows users to fine-tune the position of maximum sharpness, while bokeh shift allows out-of-focus highlights to be shifted horizontally. There's also ghosting reduction, which can be used to reduce artefacts like flare. At present, this method of fine-tuning and level of micro

adjustment is unique to the EOS 5D Mark IV, so we can't wait to test it.

#### Speed improvements

The sensor teams up with a pair of image processors. A DIGIC 6 processor is assigned to look after metering, while a

Canon decided to keep the screen fixed. A tilt screen would affect the layout of the buttons



The EOS 5D Mark IV is the first model in the 5D series to implement touchscreen control

DIGIC 6+ processor handles the image processing. Set to continuous shooting, the EOS 5D Mark IV shoots at 7fps and captures up to 21 raw images or an unlimited number of JPEGs in a single burst. Keeping on the topic of speed, the camera shoots continuously at up to 4.3fps in live view with AF tracking.

#### Autofocus and 4K video

On board is an improved 61-point AF system with 41 cross-type points. This is a similar AF system to that found on Canon's flagship EOS-1D X Mark II and provides the ability to focus down to -3EV using the viewfinder. Users of teleconverters will appreciate that all 61 AF points on offer are f/8 compatible. There are five dual cross-type points in the centre that are sensitive down to f/2.8, and as many as 21 cross-type points can be selected at f/8 for greater precision. The updated AF system joins forces with Canon's tried-and-tested 150K RGB+IR metering sensor, and to counteract the rapid on/off pulsing of artificial lights the camera also employs Canon's Flicker Detection technology.

The EOS 5D Mark IV is the first camera in the EOS 5D series to offer cinematic 4K (4,096x2,160) video at

30/25/24fps, with the option to extract 8.8-million-pixel JPEG images from movie footage. There's full HD available up to 60fps, with the possibility to record at up to 120fps or 100fps at 720p.

#### The other additions

After many years of waiting, built-in Wi-Fi is added and supported by built-in GPS. There's also support for the International Press and Telecommunications Council's (IPTC) system with a metadata function that enables users to assign additional details and information about an image to the EXIF data. We're told this feature was requested by Canon's professional users who regularly submit images to galleries and picture desks.

With regard to battery compatibility, the Canon EOS 5D Mark IV accepts the LP-E6N Li-ion battery and shoots approximately 900 shots from a single charge. The only objection from those looking at this model as an upgrade is that it's not compatible with the BG-11 battery grip. Instead, it accepts the BG-20 battery grip, which duplicates the camera's controls and dials, including a new customisable push button located beside the AF multi-controller.

#### First impressions

We were told during our press briefing that the handgrip and thumb rest are both fractionally deeper than those on the EOS 5D Mark III. However, this alteration is subtle, and had I not known about it before picking up the camera I wouldn't have noticed.

We half expected the EOS 5D Mark IV to inherit the thumb-operated sprung lever from the EOS 7D Mark II. Instead, there's a customisable push button, placed offset from the quick-menu button and just below the AF toggle. This can be set up from the quick menu using the 3.2in, 1.62-million-dot touchscreen, and it's an intuitive way to adjust ISO quickly in fast-paced shooting situations. The high-resolution screen is extremely

responsive to touch and makes it easy to navigate the quick and main menus. Other minor body changes see the remote port relocated to the front of the body, and the AF toggle is the same knurled type as you'd find on the EOS-1D X Mark II.

While the EOS 5D Mark III was a major step up from the Mark II, the EOS 5D Mark IV seems a modest upgrade. It has some appealing features and is the most advanced EOS 5D series model to date, but as in the past, there's often a strong case for skipping a generation. Current EOS 5D Mark III owners may find it difficult to justify an upgrade, but users of the original EOS 5D and EOS 5D Mark II should find it much more compelling.

## Canon revamps key zoom lenses



TO COINCIDE with news of the EOS 5D Mark IV (left), Canon revealed updates to two of its key L-series lenses, writes Chris Cheesman. The new EF 24-105mm f/4L IS II USM boasts a weatherproof build, and improved '4-stop' image stabilisation (up from its predecessor's 2.5 stops).

'The EF 24-105mm f/4L IS II USM is a perfect tool for any photographer wanting to achieve high edge-to-edge sharpness over the entire zoom range,' Canon claims. The lens, priced £1,129, is also built to deliver quiet aperture adjustment during video capture.

Also new is the EF 16-35mm f/2.8L III USM (£2,349), which Canon hopes will appeal to photojournalists, wedding photographers and those seeking a constant, fast f/2.8 maximum aperture for shooting in low light.

## Get Wi-Fi on your EOS 7D Mark II

MEANWHILE, Canon is set to launch a dedicated Wi-Fi adapter that turns its EOS 7D Mark II DSLR into a Wi-Fi-enabled camera. Designed to be portable and lightweight, the Wi-Fi Adapter W-E1 is the size of an SD card and fits into the memory card slot.

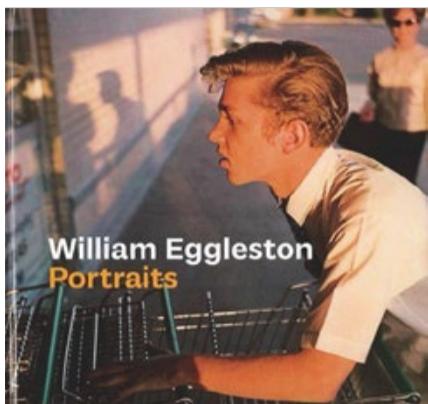
It will allow users to shoot from Apple iOS and Android mobile devices, up to 10m away from the camera, using Canon's Camera Connect app. The Wi-Fi Adapter W-E1 (£39.99) will also enable wireless transfer of images from camera to tablet or a separate monitor, allowing photographers to review their work, upload images to the internet via a smart device and save a copy while out on location.



The Wi-Fi adapter will go on sale in October and costs £40

A firmware update (due out in September) will be required for the EOS 7D Mark II, although all new EOS 7D Mark II cameras will include the adapter in the box from the end of October. The Wi-Fi adapter will also be compatible with the EOS 5DS and 5DS R via a firmware update that's due to arrive in November.

## Bookshelf



# William Eggleston Portraits

By Phillip Prodger

**William Eggleston** was able to magnify the mundane and make it quite extraordinary. In this book, **Oliver Atwell** finds the beauty in the everyday world

Published by  
National Portrait  
Gallery  
Price £29.95  
184 pages  
hardback  
ISBN 978-  
1855147102  
★★★★★

In last week's *Bookshelf* we looked at the work of Paddy Summerfield who, inspired by the American photographers of the day, began to explore the ways in which the everyday could lead to images of almost poetic beauty. One of the most obvious pioneers of this genre also happened to be a pioneer of colour photography: Memphis-born William Eggleston.

Calling Eggleston a pioneer is perhaps overstating it slightly, but his work certainly did much to help shift public perception about the form. Until that point the world of photography had been trapped in the idea that colour images were the tools of advertising and the language of the family snapshot – something superficial and unworthy of real artistic consideration. Ansel Adams, for example, the master of

dramatic black & white landscapes, was concerned that colour photography would be a distraction and divert the artist's attention away from developing a photograph's true potential. While the technology to easily produce colour photography was available in the 1940s, black & white still remained the true artistic expression.

However, in the late 1960s and early '70s, a small group of photographers began to expand the visual vocabulary of the photographic medium and inject a bit of colour into proceedings. Most significant among them were Stephen Shore, Joel Meyerowitz and William Eggleston. The appeal was in their ability to find the clear beauty in the everyday world that surrounded them. While this is clearly evident in the work of



Meyerowitz and Evans, it perhaps finds its best expression in the rich dye-transfer prints of William Eggleston.

## Prosaic poetry

Eggleston's work utilises the modern mythological US vernacular – that of gas stations, motels, backyards, diners and small towns – and by representing them in colour, elevates their seeming banality to scenes of stature. This particular volume of work by Eggleston hones the theme a little more; what we are faced with is the people who occupy these spaces. These are Eggleston's portraits.

The book is a small volume of just 184 pages, but it's enough for the photographs to get under your skin. It's all that's needed. This isn't a body of work that's attempting to delve deep into the soul; rather, it's a collection that revels in the surface details. The view is sufficient. Dig deeper if you like, but you do at the risk of losing sight of the true purpose of Eggleston's work. As Eggleston himself said, 'A picture is what it is'.

What's especially beautiful about much of Eggleston's work is the fact that so many of the pictures look as if they could have been drawn from a film. There's a real sense of narrative. You're free to conjure up your own stories. Who are the two girls lounging on the sofa engaged in conversations (above)? Who are the two gentlemen standing in the forest by a car (left)? While the captions sometimes reveal the secrets, they do absolutely



The artist's uncle, Ayden Schuyler Snr (far left), with Jasper Staples, in Cassidy Bayou, Summer, Mississippi, 1969-70



Image of actor, filmmaker and photographer Dennis Hopper, taken between 1970 and 1974

nothing to diminish the mystery inherent within each and every frame.

Eggleston is famously shy of media attention and, as with so many artists, this can often mean he has been seen as somewhat misanthropic. Yet nothing could be further from the truth. His work is utterly humane. There's no judgement, no sensationalism; he doesn't look to exploit. He's simply looking to represent and, maybe, celebrate. Just look at the image used on the book's cover (top left) – a young boy pushing trolleys into a supermarket. The light that spills upon him is ethereal and golden. The boy is in

profile and his shadow falls against the side of the supermarket. What should be an utterly mundane scene is transformed into a picture of sublime beauty. You want to know everything about that young boy.

This is the first book to explore Eggleston's relationship with portraiture, and it has been released to tie in with an exhibition, running until 23 October at London's National Portrait Gallery. This book is a perfect addition to any bookshelf, but you also owe it to yourself to head to the gallery and see these images as they were intended. They really will stay with you forever.

AP

## Also out now

The latest and best books from the world of photography. By Oliver Atwell



© INGE MORATH

### Inge Morath: On Style

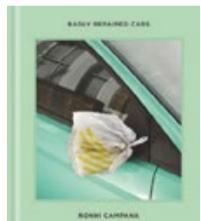
By Justine Picardie and John P Jacob (editors), Abrams, £40, 288 pages, hardback, ISBN 978-1-41972-234-9



INGE Morath (1923–2002), like all good photojournalists, was especially adept at capturing time. That may sound like an obvious statement, but few photographers are able to capture real atmosphere so endemic of the period. Morath's post-war photography is a beautiful journey. There's a sliver of aesthetic that's recognisable in this collection. It's one that has been appropriated by other photographers, Calvin Klein adverts and Hollywood. But that's not to suggest that Morath's images are stylised. In fact, her aesthetic is entirely natural. Morath was a born photographer and her approach to the world was deeply humanistic. This collection of images largely traces her career from the early 1950s to the mid-1960s. Like all good books of this ilk, it really does feel like an insight into a time gone by. The work is so strong that viewing them can feel like you're right there. The book will be published on 20 September. ★★★★☆

### Badly Repaired Cars

By Ronni Campana, Hoxton Mini Press, £12.95, 72 pages, hardback, ISBN 978-1-91056-608-4



AS WE see from William Eggleston (left), just about anything can make a beautiful subject, no matter how everyday or mundane. This small book from Hoxton Mini Press could truly represent the ultimate of that concept. Over 72 pages readers are 'treated' to a series of bodged repair jobs on a variety of vehicles. Plastic bags, tape and cardboard are all utilised to fix and correct dents, scratches and breaks (thankfully not the actual brakes, though). Your enjoyment of this book will depend largely on your tolerance to novelty projects and publications, but this one may be pushing it a bit far. That's not a criticism of the publisher, incidentally. Hoxton Mini Press consistently produces excellent and beautiful little books. Unfortunately, this one fails to get out of first gear. ★★★★☆



# Viewpoint Jon Bentley

Considering the dearth of TV shows tackling photography, what does *Master of Photography* need to do to ensure success?

**L**ove him or loathe him, photography desperately needs a Jeremy Clarkson: someone who can talk entertainingly, passionately, expertly and accessibly about the subject on TV. I came to this conclusion while watching the new Sky Arts series *Master of Photography*. Described by Sky as the 'ultimate search for Europe's best photographer', it takes 12 hopefuls and whittles them down to a winner over eight episodes. It's the kind of knock-out process we're familiar with from the likes of *The Great British Bake Off*. The victor receives a €150,000 prize.

It's rare that photography is covered at all on TV, and it would be churlish to complain too much about any particular programme. There have been good shows such as the BBC's historically authoritative *The Genius of Photography* and *Seven Photographs that Changed Fashion*. Channel 4's *Picture This*, another photo competition, was also worth watching.

Sky's new programme has many positive attributes. For example, its Europe-wide scope, the chance to see how different photographers approach a subject and the opportunity to witness experienced experts criticising their work. Exposure and focal-length details accompany each shot – a consideration that respects the viewer's intelligence, which is a rare thing on TV.

In some respects there's room for improvement. As I write, only two programmes out of the eight have been transmitted, and it's early days. But there has been lots of recapping and indulging in the mechanics of the format at the expense, I feel, of investigating what the photographers are trying to achieve. The judges appear to be conforming to a harsh *Apprentice*-like template, which is destructive and negative rather than dramatic, and there's none of the warmth you get from *The Great British Sewing Bee* or *The Great British Bake Off*.

Most importantly, though, the presenter (Isabella Rossellini) and the three main judges (Rut Blees Luxemburg, Simon



Photography on TV needs a 'Clarkson' figure

Frederick and Oliviero Toscani) need to be more insightful and articulate. I know it's difficult to describe what distinguishes a competent photograph from a truly great one, but the team seem unable to do so.

Photographers are encouraged to 'make choices, be brave and overcome your fears' – hardly enlightening or inspiring. The only exception for me was the guest photographer in the first show, Alex Webb, whose nuggets of wisdom and observation were frustratingly brief.

Growing up watching TV in the 1970s, I was impressed by experts with deep knowledge and strong opinions and the ability to vocalise them with a robust sense of humour. There was the urbane Barry Norman on films and the insightful and brainy James Burke on technology.

Clarkson has done the same for cars, helping *Top Gear* to become the most popular factual TV programme in the world. Partly thanks to digital technology, people can now relate to photography as easily as motoring; hence the subject needs a similarly talented and enthusiastic television ambassador. Or, better still, several of them.

**Jon Bentley** is a TV producer and presenter best known for *Top Gear* and Channel 5's *The Gadget Show*

**Do you have something you'd like to get off your chest?** Send us your thoughts in around 500 words to the address on page 25 and win a year's digital subscription to AP, worth £79.99

## Social life

Here are some of our favourite images from the world of social media this week



© Alan Schaller

**Alan Schaller** @Alan\_Schaller

Much of street photography's appeal lies in its deeply narrative nature. This is exemplified by Alan's shot – the ambiguity of the subject's emotion draws the viewer into the story instantly.

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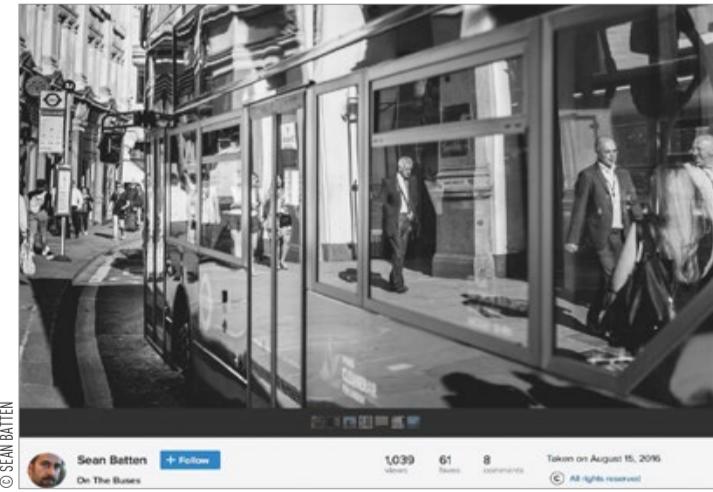


© Joe McNally

**Joe McNally Photography**

It's rare that subject and technique inform each other quite as perfectly as they do in this excellent multiple-exposure shot.

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© Sean Batten

**Sean Batten**

Reflections are a good way to subvert viewer expectations. Sean's shot provides a pleasing, almost segmented composition.

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# The rise of mirrorless

**Andy Westlake** investigates how mirrorless compact system cameras have advanced since their inception just eight years ago

I remember the first time I set eyes on the original mirrorless compact system camera. Panasonic was showing off the Lumix DMC-G1, its first model in the Micro Four Thirds system, back in September 2008. By eliminating the reflex mirror and using the main image sensor to provide a live view feed to an eye-level electronic viewfinder, Panasonic significantly decreased the camera's size and complexity compared to DSLRs.

The big question was always going to be how well the idea worked in practice, and in particular, whether the G1's on-chip contrast-detection autofocus (CDAF) could be remotely competitive with the phase-detection systems in DSLRs. We were all familiar with CDAF from compact cameras of the day, where it was usually slow and hesitant. However, not only did the G1 work, it performed beyond expectations, and could react as fast as entry-level DSLRs of the time – but only with static subjects. Faced with any form of movement, the G1 was easily defeated. Even so, it was clear that this concept was going to have a profound effect on the future of photographic technology.

Unfortunately, there was always a nagging sense of the ordinary about the G1. It looked like a nondescript DSLR and it couldn't even record

## The also-rans

As with any new technology, it hasn't all been smooth sailing, and some systems have failed to gather much traction. Both the Pentax Q and Nikon 1 systems appear to have fallen into stagnation, while Canon's EOS M system has never really got off the ground, with just six EF-M lenses released in four years.

The highest profile casualty, though, has been Samsung's NX system. Despite launching the first APS-C mirrorless camera in 2010, building up a decent lens range, and then showing the astounding NX1 at Photokina 2014, the company quietly withdrew from selling cameras the following year. This is a shame, but it reinforces a brutal commercial truth – no matter how good they are, ultimately cameras need to sell well enough to make a profit.

video; we had to wait six months to see this in the GH1. Its 12MP sensor gave poor results above ISO 800, and its electronic viewfinder was prone to disconcerting rainbow-like 'tearing' artefacts. So while the G1 was certainly admired, it wasn't much loved. Rarely has the revolution looked so dull.

### Development of CSCs

In their early days, compact system cameras were seen not so much as DSLR replacements but as companion cameras that could offer image quality that was almost as good but in a much smaller size. Some companies put a lot of effort into promoting them as simple and approachable cameras for the smartphone generation, with Sony's NEX-5 from 2010 defining the design template. But CSCs arguably found their feet in 2012, with the hugely influential Olympus OM-D E-M5 showing that there was a real appetite among photographers for small, highly capable cameras. The dominant approach now is to make true alternatives to DSLRs, with high-end performance and image quality.

Since the G1, of course, technology has moved on in leaps and bounds. For example, Panasonic's most recent model, the GX80, features radically improved autofocus; faster continuous shooting; dual-image stabilisation combining in-lens and in-body systems; and impressive video, including 4K recording.

Naturally, DSLRs have also improved over the same period, but at nothing like the same rate, if only because they were already so highly



developed. The result is that the gap has narrowed to a point where CSCs are now just as good as DSLRs for almost any kind of photography. In fact, the latest models such as the GX80, Fujifilm X-T2, Olympus Pen-F or Sony Alpha 7R II are much better than even their most recent predecessors in almost every way. So if you tried out a CSC just two or three years ago and it didn't meet your needs, chances are the latest cameras will come much closer.

Alongside improvements in camera design has come serious investment in building lens lines. Fujifilm's XF system now includes 20 optics, while Olympus and Panasonic between them produce more than 40 Micro Four Thirds lenses. Sony only launched its full-frame FE line in 2013, but it already includes 17 lenses and assorted converters, while its APS-C E-mount range numbers 15. Most enthusiasts should find that any of these systems will meet their needs.

### Advantages of mirrorless

The most obvious advantage of CSCs is the reduced size and weight of both cameras and lenses, in particular wideangle designs. But there's a lot more to them than that. Autofocus on static subjects tends to be more reliable, especially when using fast primes, as contrast detection is inherently more accurate than phase detection. The focus point can also be placed almost anywhere within the frame, and together with face and eye detection, this means it's easier to get pictures in perfect focus.

Electronic viewfinders provide an accurate preview of your shot, not just in terms of composition but also exposure and depth of field. The cameras can switch completely seamlessly between using the eye-level viewfinder and the rear screen; in contrast,

**'CSCs are now just as good as DSLRs for almost any kind of photography'**

most DSLRs perform poorly in live-view mode compared to using the viewfinder. Many CSCs also give continuous shooting speeds that DSLRs can only dream about.

### Where DSLRs still win

Despite the huge advances in CSC technology, there are a few areas in which DSLRs maintain an edge. Continuous and predictive autofocus is one, with cameras like the Nikon D500 able to track moving subjects and keep them sharp with uncanny ease. Another is battery life – where DSLRs often achieve around 1,000 shots per charge, CSCs struggle to get past 350. DSLRs often handle better, too, owing to gradual refinement of control layouts and design over many generations. Photographers who need more esoteric optics, such as long telephoto primes or tilt-and-shift lenses, are also far more likely to find them for DSLRs.

### Where's it all heading?

Photokina, the world's biggest photographic trade show, is coming up at the end of September, and the major camera makers are all likely to reveal high-end products showing off their latest technology. What exactly these high-end products will be is anyone's guess, but we're fully expecting further improvements in autofocus, continuous shooting and video technology. With the runaway success of Sony's Alpha 7 series, it also seems inconceivable that other manufacturers won't jump on the full-frame CSC bandwagon, and maybe we'll even see another medium-format system, on the back of Hasselblad's X1D.

Of course, the most controversial question is whether mirrorless systems will eventually replace DSLRs entirely. Personally, I'm sure they will, at least for all but specialist applications such as sports and wildlife. Indeed, the main hold-up is the large investment many enthusiasts have in their DSLR lens systems. But as the technology continues to improve, it's surely only a matter of time.

## Mirrorless milestones

### Panasonic Lumix DMC-G1

September 2008

The world's first compact system camera had a 12MP sensor and introduced Micro Four Thirds

### Olympus PEN E-P1

June 2009

Olympus's first Micro Four Thirds model kick-started the current fashion for retro design

### Samsung NX10

January 2010

The first compact system camera with an APS-C sensor was designed like a small SLR

### Sony NEX-5

May 2010

This ingeniously tiny camera debuted the E-mount and established a blueprint for small-bodied CSCs

### Fujifilm X-Pro1

January 2012

With its clever hybrid optical electronic viewfinder, this model kicked off Fujifilm's X system

### Olympus OM-D E-M5

February 2012

The E-M5's tough, nostalgically designed SLR-style body influenced everything that followed

### Sony Alpha 7

October 2013

Sony squeezed a larger sensor behind its E-mount to make the world's first full-frame CSC

### Panasonic Lumix DMC-GH4

February 2014

Panasonic's video-focused GH line gained 4K video

### Samsung NX1

September 2014

This technological *tour de force* could shoot at 14fps and record 4K video, but wasn't enough to save the NX line

### Sony Alpha 7R II

June 2015

With a stunning 42MP BSI full-frame sensor, this represents the current state of the art

### Hasselblad X1D

June 2016

The world's first medium-format mirrorless model has a 51MP sensor in a relatively compact body

### Fujifilm X-T2

July 2016

With intuitive dial-led operation, sophisticated autofocus and 4K video, the X-T2 already looks like a standout classic



Mirrorless cameras have advanced dramatically from the Panasonic G1 of 2008 (far left) to the current Sony Alpha 7R II

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# A professional perspective

Why have some professional photographers eagerly embraced mirrorless, while others still hold out? **Geoff Harris** canvases opinions, for and against

**I**nterest in mirrorless cameras has grown steadily ever since Panasonic released the ground-breaking Lumix DMC-G1 in 2008, with photography pundits regularly predicting that 'this will be the year in which mirrorless takes over'. We're not quite there, as DSLRs still dominate the high-end enthusiast and pro end of the market.

However, change is in the air, and while the mirrorless market is quite volatile, survey after survey has shown they are luring an increasing number of users away from big heavy cameras with flapping mirrors. It's not hard to see why: the traditional sticking points for mirrorless refuseniks, namely electronic viewfinders and AF performance, seem to improve with

each new release, and there's never been such a wide choice of high-quality zoom and prime lenses. For many travel and documentary photographers, the light weight and compact dimensions of mirrorless cameras are a no-brainer. More and more landscape, portrait and even sports photographers are changing over too. Yet, many of their peers are sticking with DSLRs.

Over the next six pages, we chat to a range of top photographers from different genres to get their take on the DSLR vs mirrorless issue – and some of the findings will surprise you.



## Sports and action photography

The Rio Olympics was mostly shot on DSLRs, but the 2020 Games in Tokyo, Japan, could be very different

AS THE massed ranks of the Canon L series and Nikon pro lenses at the Rio Olympics have shown, sports photographers have been very reluctant to trade in their DSLRs for mirrorless. Much of this is down to the perception that the continuous AF on mirrorless cameras lags behind (it's essential for action shots), or that their electronic viewfinders (EVFs) are not as bright and clear as traditional optical versions. Leon Neal, a sports and press shooter for the AFP agency, speaks for many of his peers.

'Mirrorless is almost certainly the future, but currently the features that I need aren't addressed by makers of mirrorless systems,' says Leon. 'My Nikon D5 bodies are very fast and incredibly tough, but also include things like a network port for tethered shooting at events like Wimbledon and the Olympic Games. I'm sure future generations of cameras will ditch the flapping nod to history that is the mirror, but until then, I'm sticking with it.'

While a network port for tethered shooting is indeed lacking in mirrorless cameras – makers would argue it's still a very niche feature – some of Leon's colleagues are proving more receptive to the idea of changing over.

Take Mark Pain, former chief sports photographer for *The Mail on Sunday*. 'I've just finished a hands-on test of a Fujifilm X-T2 prototype, which I took to the UEFA 2016 soccer championship and this summer's tennis,' he says. 'I was sceptical about it at first, but very pleasantly surprised.'

As Mark explains, a lot of sports photographers don't like change and need time to get used to new technologies, but the X-T2 offers some big advantages. 'It's silent and much lighter,' he adds.

Mark is very happy with the X-T2's picture quality (see his outstanding image of Andy Murray, right) but reckons there are still some issues that need to be addressed.

According to Mark, a key area in which mirrorless still lags behind is continuous/motor drive shooting. 'One of the differences between amateur and pro sports photographers is that we look through the viewfinder all the time, even when firing off shots with the motor drive,' he says. 'I am lifting and depressing the shutter even though I am using continuous shooting. On the new Nikon D5, there is hardly any blackout between the frames, but the EVF on a mirrorless camera is computer-generated. Because of the way they work, mirrorless cameras have to turn the sensor on and off when using the motor drive, so there is a slight lag when trying to follow a fast-moving soccer match, for instance. With a modern pro DSLR, there is a processor for the autofocus and another one for the picture processing, which also improves performance.'

### Lenses on mirrorless cameras

Another issue is lenses, but as Mark notes, there are extenuating circumstances: 'Even with Fujifilm, which has quite a good range, there are relatively few primes and they are relatively short. I think the

company is trying to appeal to as many customers as possible so this is understandable. Remember, with APS-C mirrorless you don't need such massive lenses anyway. Because of the crop factor, a 300mm f/2.8 lens, which is the go-to lens for a lot of sports photographers, only needs to be a 200mm f/2.8 on APS-C.'

Mark reckons the X-T2 will be a game changer (he stressed he tested a prototype version). 'I believe the future is mirrorless for sports,' he says. 'When it comes to AF, the X-T2 is not quite up there with my Nikon D5, but it's big improvement from the X-T1. Canon and Nikon have to accept that the future is mirrorless if they want to keep customers. You can be sure that makers will be doing their best to ensure as many sports photographers as possible are using their mirrorless cameras at the Tokyo Olympics in 2020.'

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© MARK PAIN, TAKEN WITH A PRE-PRODUCTION FUJIFILM X-T2

Long lenses will always be needed for sport



© MICHAEL TOPHAM



© MARK PAIN, TAKEN WITH A PRE-PRODUCTION FUJIFILM X-T2



Continuous focus has leapt forwards on the X-T2 prototype that Mark Pain tested



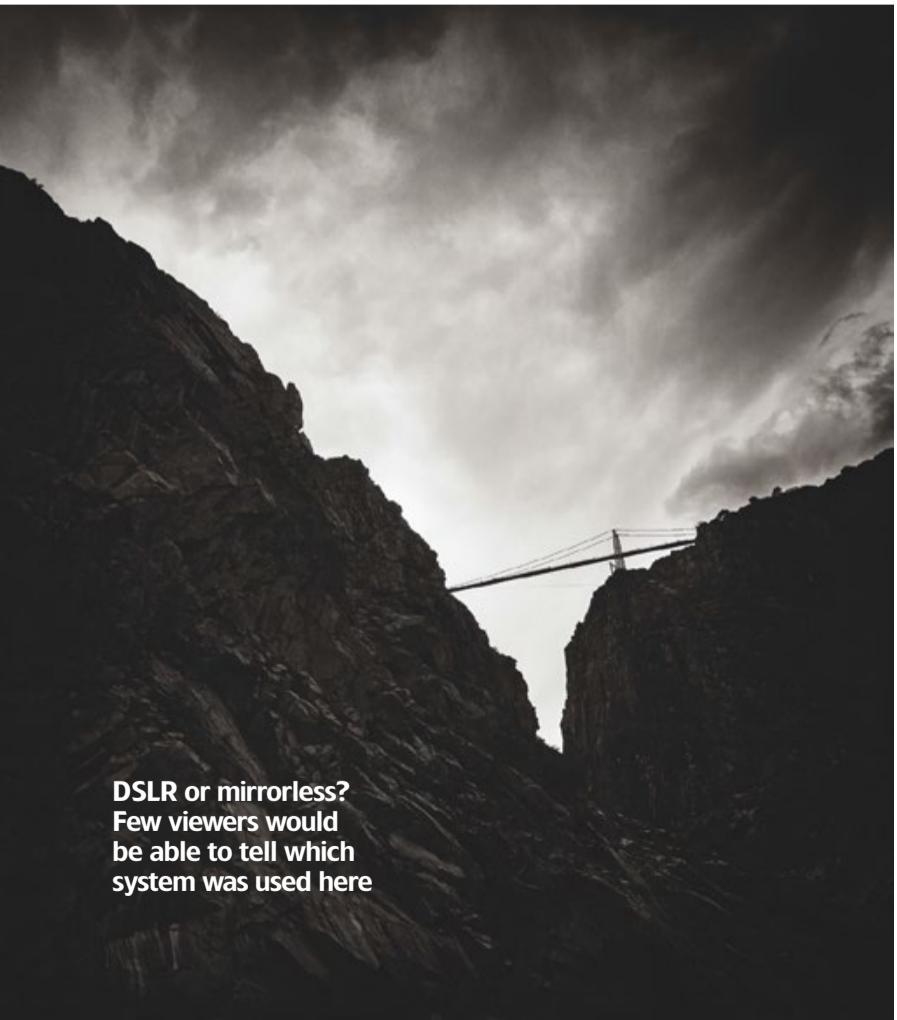
The compact dimensions of the X-T2 may deter some sports pros

## Sports versions ahoy?

While most mirrorless manufacturers make a virtue of their camera's compact dimensions, this can be a negative for sports photographers. 'A worry was the small size and small grip, particularly when I used the Fujifilm X-T2 with a long lens,' Mark Pain observes. 'Compared to the Nikon D5 body it feels small, so you need to change your mindset. It would be great for sports photographers if makers could bring out a special "sports" version of their cameras with a larger build and grip, so it felt more ergonomic with larger lenses.' Sports versions of mirrorless cameras could also include important specialist features, such as a network port for tethered shooting at major sporting events.



Landscape  
photographer Steve  
Gosling is getting top  
results from mirrorless  
cameras



DSLR or mirrorless?  
Few viewers would  
be able to tell which  
system was used here

## Landscapes

How much longer will the hills be alive  
to the sound of DSLR mirrors locking up?

YOU DON'T tend to see many landscape pros using mirrorless cameras, and the same goes for their enthusiast fans. There are various reasons for this. Landscape and travel veteran David Noton says: 'I prefer not to have a poor-quality TV screen between the subject and me. What's more, I like to really look into the composition through an optical viewfinder, without necessarily having to turn the camera on. I'm also worried about speed of focusing and battery consumption.'

**Mirrorless myths dispelled**  
Yet there are several well-regarded landscape professional photographers who have made the change to mirrorless and never

looked back. Olympus shooter and course leader Steve Gosling is a good example. 'The first thing to say is that I have no problem going from a full-frame Canon EOS 5D Mark II to an Olympus OM-D,' he says. 'I've made prints up to 30x20in from the Olympus without any problem. People come to my courses and say: "I've been thinking about mirrorless, but how can I shoot landscapes with such a small sensor?" I ask them how big they print, and they usually say A3 or A3-plus. I chuckle, as the OM-D system can easily do that. There are a lot of misconceptions.'

Steve also cites the range of high-quality Zuiko lenses as a reason for choosing the Olympus OM-D system, including a set of weather-



sealed and relatively lightweight f/2.8 zooms. 'Because of the small size of the camera's sensor I can shoot at f/8 and f/11, but to get the same level of depth of field detail from the Canon I'd have to shoot at f/22,' he says.

So what about that 'poor-quality TV screen', as David Noton calls a typical mirrorless EVF? 'I am totally comfortable with "what you see is what you get" EVFs, and they've become better and better since the original Olympus E-M5,' counters Steve. 'I find it frustrating on workshops when I look through students' optical viewfinders and can't immediately see how their camera is exposing the scene. I mainly shoot landscapes on a tripod, so I use the rear screen to compose

and check focus rather than peering through the EVF. Focus peaking really helps with manual focus, too.'

#### Changing attitudes

According to Steve, some of his landscape peers are reluctant to switch to mirrorless for more than purely technical reasons. 'If you have invested a lot in a system, it can be expensive to change,' he says. 'There's also the "if it ain't broke, don't fix it" attitude. For me, the switch was also driven by a long-standing back problem, exacerbated by heavy DSLRs and lenses. Once I found I could get great prints from the OM-D system, it was a no-brainer.'

Visit [www.stevegoslingphotography.co.uk](http://www.stevegoslingphotography.co.uk) and [www.davidnoton.com](http://www.davidnoton.com)

**'The switch was also driven by a long-standing back problem, exacerbated by heavy DSLRs'**

## Mine's bigger than yours

STEVE'S points are echoed by another landscape shooter and regular AP contributor, Paul Sanders. 'I switched three years ago,' he says. 'It felt like it was all about the DSLR – my camera's bigger than yours, and so on. I had run into a bit of a creative block, so I went out and bought a Fujifilm X-Pro1 and a 14mm lens as a way of taking the hassle out of choosing kit. Within a week I was taking more photos and enjoying experimenting more – a job as cool as photography shouldn't be a chore.'

Again, Paul shrugs off any worries about a drop in resolution compared to pro-spec DSLRs. 'A lot of my work is long exposure, so it's a bit soft and fluffy anyway,' he says. 'There are some differences with the smaller sensor, but it's not about the technical quality of the image; it's about the artistic quality. I have printed images at 48in across without any problems. I can use the full range of lens filters too.'

However, Paul does tend to expose more to the right with his Fujifilm mirrorless system. 'It's technically sacrilege, but I push highlights until they clip and then recover in raw, so there's plenty of detail in the shadows,' he says. 'Even when exposing for shadows, noise is not bad; it depends on how you shoot. One thing I would like is the ability to shoot at an ISO lower than 200, but there are always compromises you have to accept. Some landscape photographers won't change to mirrorless as it's an ego thing – a big camera means I look professional, and must know what I am doing! Visit [www.paulsanders.biz](http://www.paulsanders.biz)

**'I was enjoying experimenting more – a job as cool as photography shouldn't be a chore'**



Paul Sanders uses a lot of long exposure in his work



© SARAYA CORTAVILLE

A smaller mirrorless lens is a godsend for those wanting to put children at ease

## Portraits and weddings

Mirrorless seems to have found a friend in portraiture

SPORTS and landscape photographers may still be quite traditional, but one genre in which mirrorless cameras are becoming increasingly common is portraiture – particularly weddings, travel, family portraits and even advertising. For weddings and family portraits, the size issue pops up again.

'I do sometimes get funny looks at weddings when people see my Fujifilm mirrorless,' says pro photographer Saraya Cortaville. 'Some of the "Uncle Bob" guests [family and friends who come with cameras] may have a bigger camera than me. It doesn't bother me as I know my work is good enough. On the positive side, when photographing children, smaller

mirrorless lenses are a godsend. A big 24-70mm SLR zoom can intimidate kids, but with mirrorless it's much less of an issue. With the crop factor and rear LCD I can get so much closer to them.'

The same goes for Saraya's travel work, where she spends three months a year working for charities and NGOs. 'I'd go to places like Nepal or Tanzania and the villagers wouldn't speak to me for a couple of days as they were so freaked out by my DSLR gear,' she says. 'They didn't understand why I was there.'

### Mirrorless discrimination

However, it can cut both ways. John Nassari, a commercial portrait and wedding photographer who shot the cover image for AP 13 August, has



**Commercial photographer John Nassari gets good low-light performance from mirrorless cameras**

also faced resistance to his camera choice, but this time for choosing mirrorless over more traditional kit.

'An art director told me I wouldn't get the job if I used mirrorless – they called them toy cameras and insisted I use medium format,' he says. 'This is ridiculous, as you can get incredible detail from Olympus raw files – 40x30in prints are absolutely fine. I know this as I have a background in large-format work. There is a myth about mirrorless crop-factor images not being high enough resolution.'

John also reminds us that despite the relatively 'small' Micro Four Thirds sensor, very high-resolution files are possible on the Olympus OM-D E-M5 Mark II. 'Its high-resolution mode means you can record 40MP JPEG images or 64MP raw files,' he adds. 'The sensor takes six shots across the frame and matches and combines them into a 40MP file. It's perfect with a tripod for interior work, although you can't use it with portraits in case you move or the subject moves. It's also hard to use with landscapes with clouds and wind.'



© JOHN NASSARI

**The high-resolution mode on the Olympus OM-D E-M5 Mark II enables large and very detailed files**



### Mirrorless in the studio

So what about studio work? George Fairbairn was named Advertising Photographer of the Year 2014, and is a big fan of the Fujifilm X-T2 (along with Mark Pain, he also tested a prototype of the camera). 'The 36MP files from my Nikon D800 were annoying,' he recalls. 'The dynamic range of the X-T2 impressed me, as did the ease with which you can fine-tune AF – reducing the size of the AF square is great for me, as I often shoot full-body portraits, where the conventional AF square can cover the subject's head. I use third-party studio lights, and my mirrorless cameras work fine with them. The only things on my wish list for the X-T2 are to do with second curtain flash. There was a weird issue with a low-sync speed, but it may have been a prototype problem. It would be good if the electronic shutter could fire the hotshoe, while the placement of the viewfinder off button next to the shutter button is not helpful.'

Visit [www.sarayacortaville.co.uk](http://www.sarayacortaville.co.uk), [www.johnnassari.co.uk](http://www.johnnassari.co.uk) and [gfphoto.co.uk](http://gfphoto.co.uk)

Studio photographer George Fairbairn also got good results from the X-T2 prototype

© GEORGE FAIRBAIRN, TAKEN WITH A PRE-PRODUCTION FUJIFILM X-T2



## And the winner is...

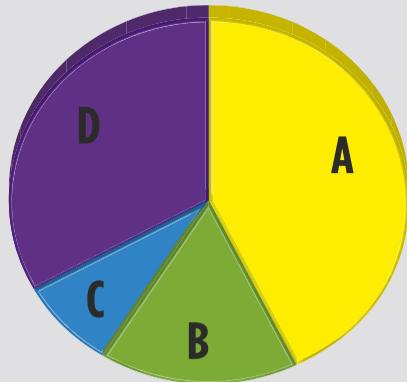
THERE is no clear-cut victor this time. Compared to even a couple of years ago, it was relatively easy to find accomplished professional photographers who have happily made the switch to mirrorless, but plenty still haven't. That said, it would be wrong of mirrorless evangelists to put this all down to the innate conservatism of DSLR die-hards, or the reluctance to spend on an entirely new camera system.

Also, few professionals appear to be overtly 'anti' mirrorless. Some, like music photographer Tom Barnes, object to what they describe as an overtly 'electronic' feel and too small dimensions for big hands (he's 6ft 6in tall). But most are agnostic – like travel, landscape and architectural shooter, David Clapp. 'Mirrorless cameras are wonderfully versatile, and I use my Canon EOS M3 a lot for static subjects,' he says. 'But I do still worry about continuous autofocus outdoors with the contrast-detection AF you get with mirrorless cameras. They are not capable at assessing the subject as fast as DSLRs with a separate AF sensor.' Or, they echo Guy Edwardes' views, worrying they'd end up with two systems: mirrorless for landscape but DSLRs for wildlife (because of the perceived continuous AF problem).

### No automatic choice

The argument rumbles on, but one thing's for certain: the latest generation of high-end mirrorless cameras, particularly the Fujifilm X-T2, indicates that DSLRs are no longer the automatic choice for many professional photographers. We'd love to hear your thoughts on the debate. Email us at [APusers@timeinc.com](mailto:APusers@timeinc.com). Visit [www.tombarnes.co.uk](http://www.tombarnes.co.uk), [www.davidclapp.co.uk](http://www.davidclapp.co.uk), [www.guyedwardes.com](http://www.guyedwardes.com)

**'I still worry about continuous autofocus outdoors with the contrast-detection AF'**



## In AP 13 August, we asked...

Which focus mode do you mostly use?

### You answered...

A Single-shot autofocus	43%
B Continuous autofocus	16%
C Manual focus	8%
D I switch between them regularly, depending on what I'm shooting	33%

### What you said

'I use single-point/single-shot autofocus with back button or touchscreen point selection.'

'Manual. All but one of the lenses that I use regularly are manual focus. The one autofocus lens occasionally gets it wrong, but I put up with its misdemeanours.'

'I switch between them. Usually continuous for action shots, and manual for macro with a DSLR, and single shot for stuff I shoot with a compact.'

'I try to use whatever's appropriate to the subject matter, with one exception. The exception is rugby photography using a Nikon D810 with a Sigma 50-500mm, for which I use single centre-spot focus. For some reason this works better for me than the continuous focus on that camera.'

**Join the debate on the AP forum**

### This week we ask

Can mirrorless cameras match DSLRs for your kind of photography?

**Vote online** [www.amateurphotographer.co.uk](http://www.amateurphotographer.co.uk)

## Top news stories

What's trending on the AP website

The screenshot shows the Amateur Photographer website with a banner for the European Imaging and Sound Association (EISA) winners. The page features a large image of a camera and text about the winners being Europe's best products. Below the banner is a 'Review Finder' section with filters for categories, manufacturers, and price ranges.

- 1 European Imaging and Sound Association (EISA) winners: Europe's best products
- 2 Weather Photographer of the Year 2016 reveals some real stunners
- 3 Striking action photos showcase RAF photography talent
- 4 Nikon expands super-telephoto zoom line-up with new releases
- 5 Nikon unveils D3400, an entry-level DSLR with SnapBridge

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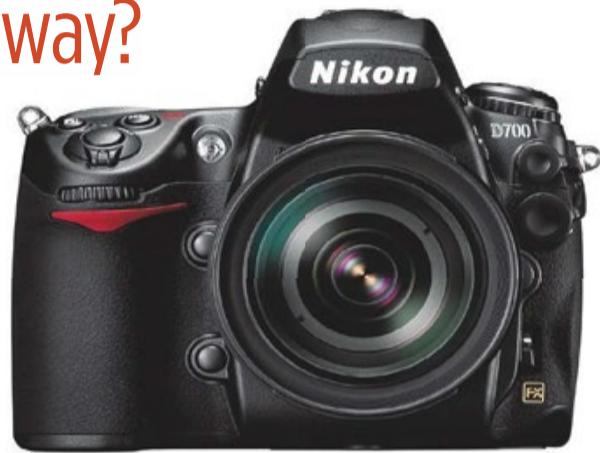
### LETTER OF THE WEEK

## Will DSLR go the CRT way?

I find myself using compact system cameras a lot nowadays – so much so, that I decided to sell my beloved Nikon D700 full-frame DSLR. Before you throw your arms up in horror, consider the weight of the D700. It was so heavy with a 50mm f/1.4 that I never took it out, unlike my CSCs that are small and light. But this made me wonder, are we clinging to swinging mirrors in DSLR cameras when we don't need this old technology any more? Given the advances in electronics and 'real-time' viewfinders of CSCs that can let us view live exposures, surely the old-style DSLRs will go the way of the cathode ray tube in televisions. They might even become quaint enough to be classed as oldies.

**Andrew S Redding, via email**

**You're not alone in making the switch from DSLR to CSC. Now that initial concerns about their limited lens ranges and poor electronic viewfinders have been addressed, CSCs are a much more**



tempting alternative to DSLRs. Their greatest advantages are the size and weight, but as you mention, their electronic viewfinders offer assistance too. That said, DSLRs have advantages of their own, such as fast continuous autofocus, long battery life and large, comfortable handgrips. You can read more about our opinions and thoughts on the debate of DSLR vs Mirrorless throughout this issue – **Michael Topham, deputy technical editor**

LETTER OF THE WEEK WINS A 16GB SAMSUNG SD CARD. NOTE: PRIZE APPLIES TO UK AND EU RESIDENTS ONLY



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**SAMSUNG**

## Kudos on a great issue

WOW! What a fantastic issue (AP 25 June). How do I begin to sing its praises? I'm glad I subscribe as I may have missed a brilliant issue. As an amateur photographer for more than 60 years, as well as a professional in many disciplines for over 40 years, I more than appreciated the whole issue. There was something for everyone. Beautiful landscapes, and nice to see work by unknown artists. There was also the fascinating and excellent documentary work by Michal Huniewicz, fantastic portraits in APOY round 3 and a great section on gifted young photographers to watch. I especially enjoyed seeing the



work and projects by women and foreign photographers. I hope we'll see more work by women and foreign photographers, and hopefully, work by unknown British documentary practitioners. Even Roger Hicks' page (*Final*

*Analysis*) was enjoyable for a change, as I greatly admire the early pioneer photographers. Thanks again to the whole team at AP. Your hard work is greatly appreciated. It helped to make my Father's Day.

**John Heywood, via email**

Thanks, John. We found so much great material for the 'Undiscovered' issue that we'll almost certainly be doing another one next year – **Nigel Atherton, Editor**

## Canon and cropping

For some years I have owned several versions of Canon's IXUS camera range. I quite like these handy, small cameras that switch on fairly quickly. One of my earlier IXUS cameras was the IXUS

132, with 16 million pixels, 8x optical zoom, cropping and with some other functions too. Later, I bought an IXUS 265, with 20 million pixels, 8x optical zoom, filter functions and cropping.

I recently bought another IXUS model, but there are no filter functions or cropping available. Why has Canon gone into reverse?

I have also visited a camera shop and tried out a number of Canons IXUS models sold now, but I noticed that all the models now don't include the cropping function that was on their older models. No cropping any more? I find it disappointing that Canon has taken the cropping function off its more recent versions of these cameras. It is a pity these days that some products like those don't improve over time. One has a view that some of the earlier IXUS models are better than the new ones. Does Canon have some reason for taking cropping off the latest IXUS cameras?

**Jonathan Swift, Devon**

Like all camera manufacturers, Canon has to constantly reassess what features to include on its new models, on the basis of feedback from its existing customers. In today's

**market, inexpensive point-and-shoot cameras like the IXUS range have mostly been obliterated by smartphones, and the pressure is to make them simple to use at the lowest possible price. This probably explains why Canon has removed cropping from the latest models; it just doesn't believe most buyers will use it. This, of course, is of no consolation to people like yourself who find it valuable** – **Andy Westlake, technical editor**

## Focusing on the issue

Of course, Nigel Atherton is absolutely right in pointing out that fixed apertures on smartphones often result in

everything in the image being in focus (*Editorial*, AP 30 July). However, smartphone cameras are improving. I took these pictures (below) in Chichester, West Sussex, using the camera and an app on my iPhone, and thought that together, they'd made quite a good job of blurring the background while keeping the subject sharp.

**Alan Dryer, Bucks**

**Alan, thanks for illustrating that with a suitable app and careful technique you can achieve moderate control over depth of field with a smartphone. I won't be trading in my 50mm f/1.4 lens just yet, though** – **Nigel Atherton, Editor**



Alan took both these pictures using his iPhone and an app; he did manage to achieve moderate control over depth of field

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## In next week's issue



# Taking shape

Tracy Calder shares some essential pro tips for shooting silhouettes across a range of photography genres

## Canon EOS 1300D

Audley Jarvis gets to grips with Canon's latest entry-level DSLR

## Northern exposure

Ian Cameron, champion of Scottish Landscape Photographer of the Year 2016, tells us what inspires him

## Pentax K-1

Matt Golowczynski takes a close look at the first full-frame model in the Pentax DSLR family

# Trusty sidekick

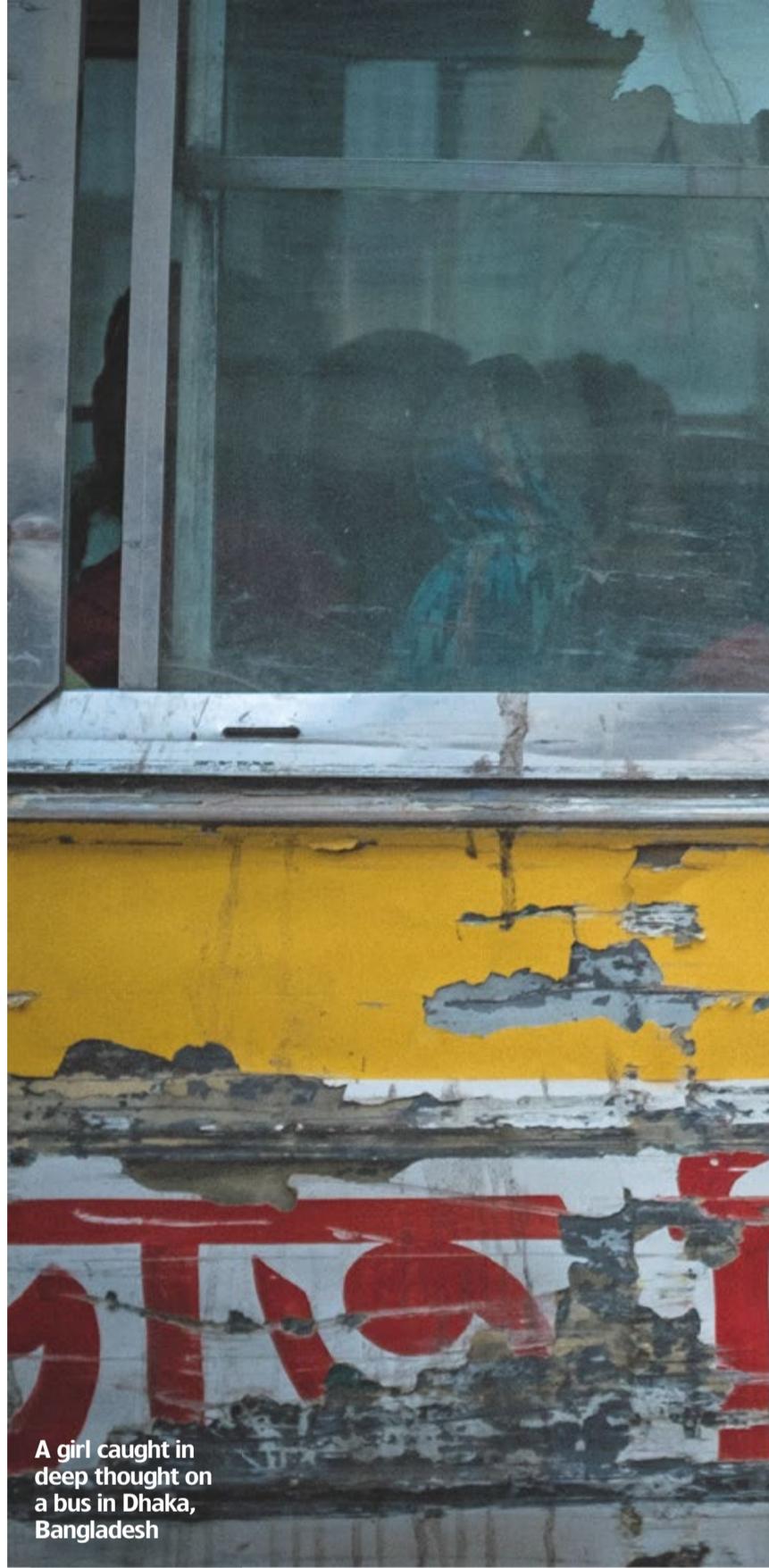
Documentary photographer **Paul Ratje** demonstrates how an APS-C compact camera improved his ability to capture daily life on the streets

I am a travelling photographer who carries two full-frame Canon bodies and a selection of prime lenses for my work, whether it be photojournalism, travel or commercial. I used to say I would not feel confident shooting on a small camera because of the loss of depth of field control and the lack of a viewfinder. However, times have changed (as has my back) and compact cameras are becoming more appealing.

Recently, I have been spending months at a time on the road. Bearing the weight of my kit can be exhausting, causing me to leave it behind at my accommodation when I go on routine walks for dinner or out to buy something. Of course, it

is always during these times that I miss some random moment on the street, wishing I could have captured it on camera. I am sure most photographers are familiar with this. You might be on a routine errand, grabbing dinner or having a coffee, but amazing moments happen all the time, not just when you're carrying your camera.

In some places the presence of my DSLR has been almost offensive to locals, especially in tourist hotspots. At Larung Gar Buddhist Academy in Sichuan, China, the nuns and monks are so tired of being photographed by tourists that they can almost *smell* a DSLR. Requests to take a photo are often met with a harsh rejection. I do not wish people



A girl caught in deep thought on a bus in Dhaka, Bangladesh



Passengers rest in a waiting room at Kyoto train station

ALL PICTURES © PAUL RATJE

to feel awkward when I take photographs, so I barely took any during my time there.

However, I believe photographers have a responsibility to document scenes of life, so for candid scenes I never feel guilty. After all, in years to come, an image may be the only trace of what a place or culture was. At Larung Gar, even doing this was incredibly difficult with my DSLR.

Later, as an alternative to my bulky professional camera, I began to think of upgrading my cheap Android smartphone to an iPhone 6s and using it as my handy, take-anywhere camera. I soon decided against this idea, as I tend to be rough on my mobile phones and have come to enjoy having a cheap phone I can be careless with, without feeling guilty.

That said, the images from each generation of smartphone are



getting better and better, and many photographers are using theirs to produce work that is actually being published.

Instead, what I wanted was something with a viewfinder and serious depth of field, so I started thinking about investing in what I call a 'sidekick' camera: something light, sleek, powerful and discreet that I could take with me all the time.

#### Travelling light

I went to Bangladesh recently on a mission to capture the essence of the country, as well as to produce interesting documentary stories. It's a congested, colourful, chaotic and utterly photogenic place. I usually shoot a lot of portraits as well as candid street scenes, so I wanted a camera that could do just that. Before I left for the country, I

picked up a used Fujifilm X100S – my sidekick camera. I was a little worried about its fixed focal length, but this aspect of the camera gradually became its greatest asset. The X100 series cameras are magical little things that, with their fixed focal length, force you to be a moving photographer, and in Bangladesh I took full advantage of this.

#### The discreet camera

Compacts such as the X100S truly give you the stealth and speed you need to capture candid scenes easily. Sometimes I can be feet away from one, shooting away, and people pay me no attention. Unlike a DSLR, a compact doesn't make you look like a professional working for some news agency.

In Taiwan, where I live, people are extremely camera shy and prone to



**The Fujifilm X100S is Paul Ratje's 'sidekick' camera – excellent for candid street shots**

putting up a peace sign, or for them, a V-for-victory sign with their fingers when they notice a camera. There have been umpteen times a good street shot has been ruined by those two fingers.

In January, for an editorial assignment, I had the challenge of capturing the recent Taiwanese presidential election. I wanted to capture



## 'Without doubt, discretion is my compact sidekick's biggest advantage over a DSLR'

► candid moments, unposed, without the V-for-victory fingers. My compact allowed me to capture some great candid moments, particularly the reactions and emotions of Taiwanese voters as they witnessed the election of their first female president.

Without doubt, discretion is my compact sidekick's biggest advantage over a DSLR. For photojournalists, as well as travel and street photographers, a compact such as my Fujifilm X100S can record those candid moments no DSLR ever could.

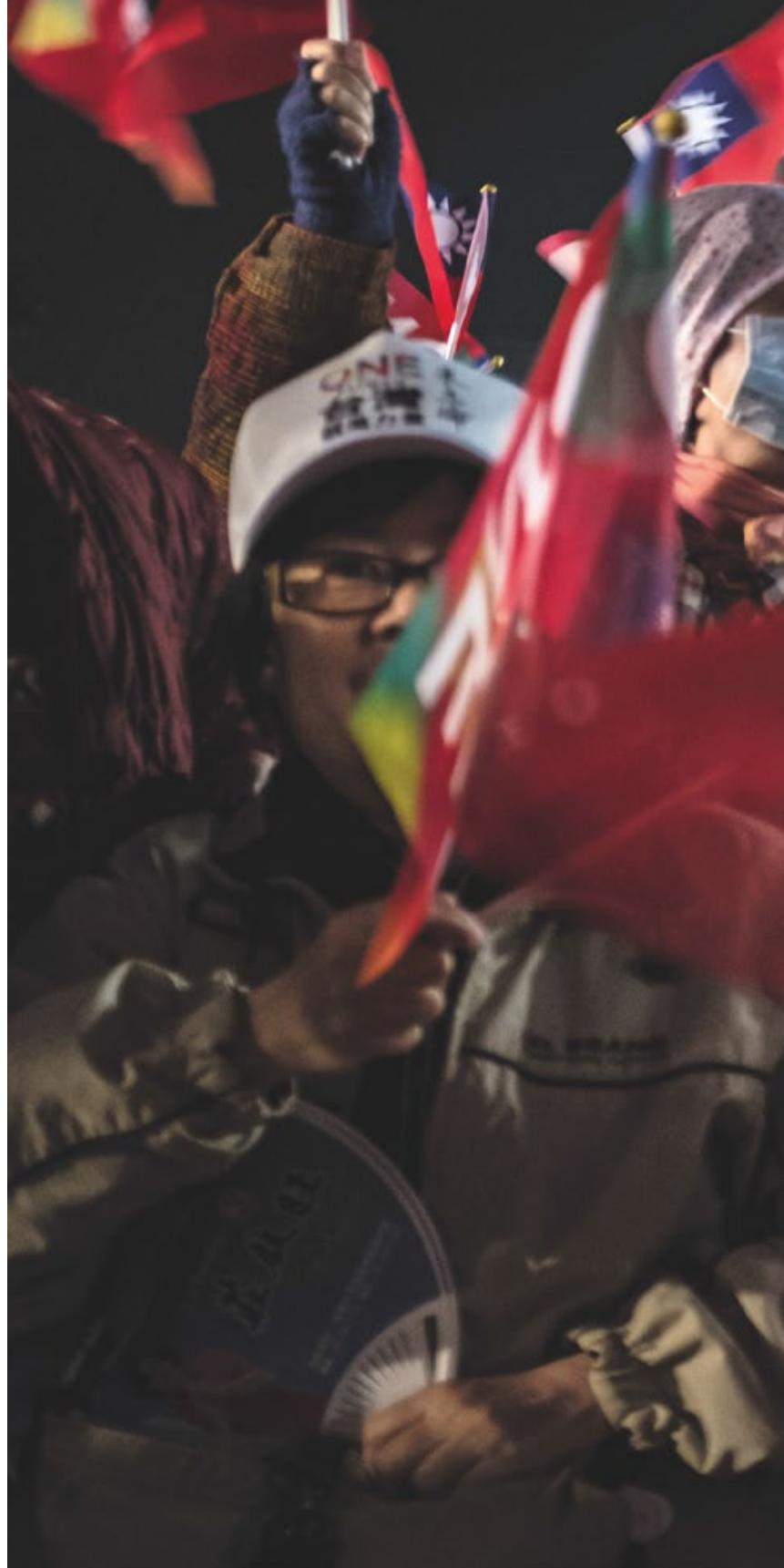
### Light and quick

Sometimes, because it is so light, I almost forget I am carrying my X100S. Like most mirrorless cameras it's lighter than Canon or Nikon DSLRs, which is why many professionals have made the switch. Their lightness relieves sensitive backs crippled by years spent lugging DSLRs, while helping you to move faster for that vital shot.

Owing to its size, the compact sidekick comes into its own on days spent travelling on work. I don't want to take my DSLR out of its safe place when I am on the train because I am worried about losing something or having it stolen. Instead, I just hang my compact sidekick around my neck, with it not really being too obtrusive. It's not as if a compact is inferior to a DSLR, either. The images from the X100 series are on a par with the image quality of most APS-C DSLRs.

### Unobtrusive style

Compacts like the Fujifilm X100 series, or mirrorless models such as the Olympus Pen and OM-D series almost have a Leica-vintage feel. You don't look like a paparazzo. Instead, you look like someone in the crowd when holding such a camera – invisible even. I can easily slip my X100S under my jacket if I don't want people to see it, while my DSLRs feel like an M16 rifle and all eyes are on me.



Paul Ratje studied at New Mexico State University and earned a bachelor's degree in photojournalism and foreign languages. His passion for photography and love for languages means he is currently based in Taiwan where great photos, inspiration, as well as an outlet to practice his Mandarin, are right on his doorstep. Visit [paulratje.photoshelter.com](http://paulratje.photoshelter.com)

### The downsides

Compacts certainly have their limitations, though. I couldn't do a wedding shoot or photograph sports with a compact. If you are a professional photographer or avid hobbyist, you need a variety of focal lengths to shoot with, and probably a full-frame sensor.

The Sony A7 series is enticing, but making the switch is expensive. Adapters for Nikon and Canon lenses make the A7 almost as heavy as a DSLR, and right now, I don't think I would trade Sony's lens line-up for what Canon and Nikon have. However, prices on the Sony E-mount lenses will eventually drop, and second-hand examples are sure to surface on eBay.

For my work as a documentary photojournalist, I could get away with using my Fujifilm X100S for many shoots, but not all. When I'm under pressure to get a job done,



Supporters cheer at a campaign rally in Kaohsiung, Taiwan

I prefer the control my DSLRs give me. If I am shooting a wedding, I am much more comfortable with the control I get from my Canon EOS 6D, not to mention its long battery life and all of the lenses I am accustomed to shooting with.

#### A big help

A compact can help you get the shots you have been missing when you don't want to have that heavy DSLR around your neck. Whether at night, on random errands or while in transit, it will take the load off your back, while keeping you creative. It has changed my photography immensely and using my X100S, I now look forward to my leisure photography. However, whatever camera you choose, always keep shooting and pushing for different images, and remember, your eyes will always be your best teachers.

AP



Girls dressed in kimonos take a selfie at Arashiyama train station near Kyoto, Japan



## AN ALADDIN'S CAVE OF SECOND-HAND NIKON



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*– Professor Heather Angel, Wildlife & nature photographer, lecturer, author, tutor*

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After years of using DSLRs, **Martin Evening** decided to venture into the world of mirrorless cameras. Here's what he learned

# Mirror image

**M**ost advanced digital cameras evolved from traditional film camera body designs. For example, my first professional DSLR was the Canon EOS-1Ds, which was based on a Canon 35mm film camera body. Since then, I have purchased successive models of full-frame as well as APS-C-sensor Canon cameras. I have also shot using medium-format cameras such as the Hasselblad and Pentax 645 systems, and these too are based on SLR designs dating back to the era of film.

During the past eight years or so, we have seen camera manufacturers break free from the constraints of placing the sensor inside the body of what is essentially a 35mm SLR film camera, and choose instead to rethink their digital camera designs from the ground up. A number of manufacturers have produced brand new systems based on a mirrorless

design with dedicated lenses. There are clear benefits to be had from this approach. If cameras no longer need to have optical viewfinders and you can do away with mirror-shutter mechanisms, then the digital sensor plane doesn't have to be set so far back from the lens and the camera body doesn't have to be so deep, or heavy. With fewer mechanical parts, there is less to go wrong and camera body updates are less expensive.

It was a big decision for me to move from a camera system with an optical viewfinder to one with an EVF. Improvements in the quality of the latest electronic viewfinders, as well as my trust in autofocus systems, helped me make that transition. Most of all, I wanted a camera system that was less bulky and less heavy, but didn't sacrifice image quality. There was a time

when I could take a full-frame DSLR plus lenses in a camera bag onto a flight without exceeding the cabin baggage allowance. However, as a result of tighter weight restrictions, I have sometimes had to take lighter APS-C bodies with me instead. Even the prospect of carrying around a full-frame digital SLR kit has been a disincentive to going out and enjoying my photography.

What clinched it for me was an experience I had last summer, when after a long, tiring journey I had to lug a camera bag plus laptop up seven flights of stairs. Owning large, full-frame digital SLRs was fine when I shot mainly in the studio, but as I have become more interested in shooting landscapes, portability has become an important issue. Getting older certainly hasn't helped!

## Sony Alpha 7R II

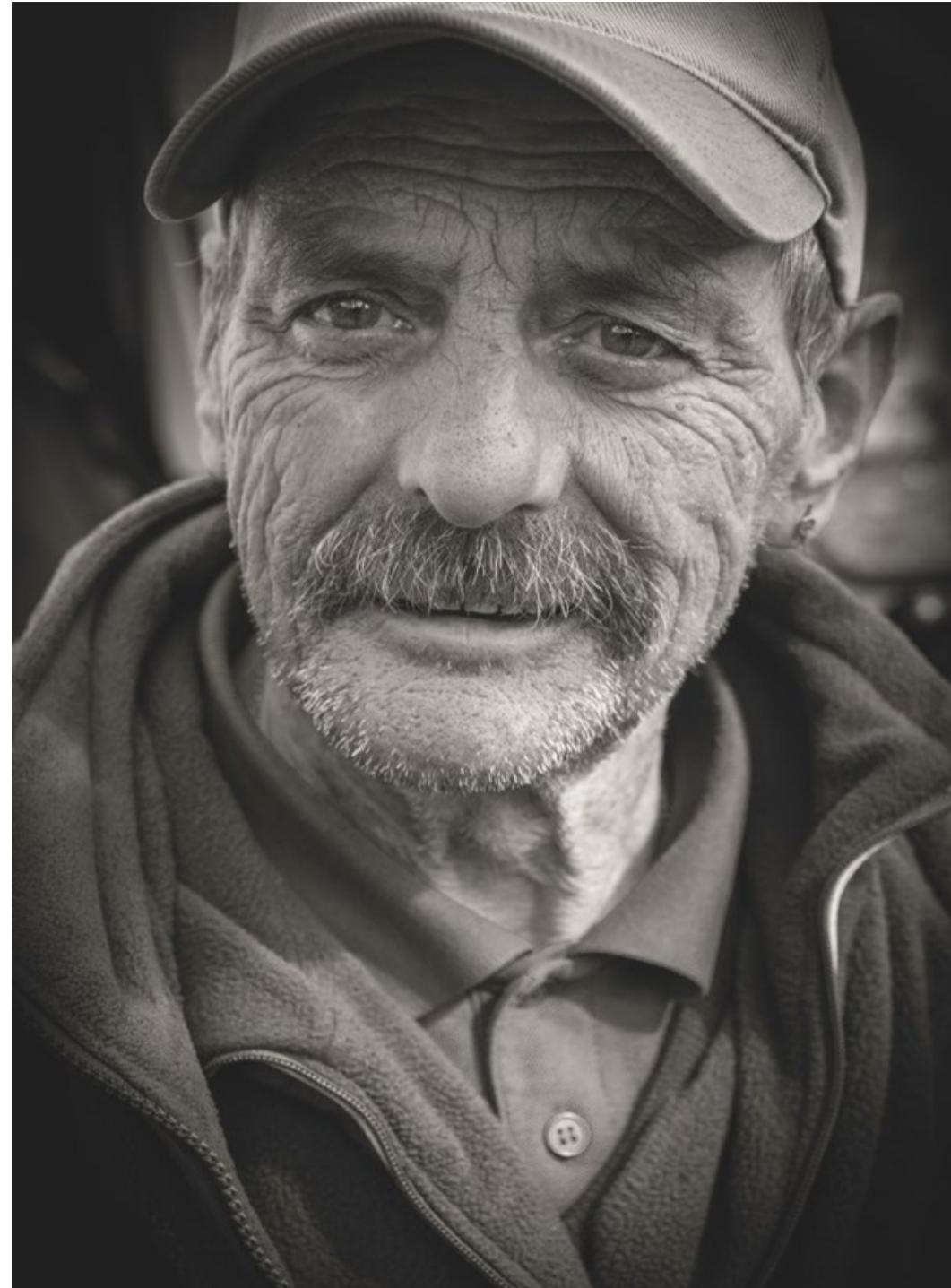
Neither Canon nor Nikon has so far shown any interest in designing professional mirrorless camera systems. Therefore, in looking for



an alternative to my Canon digital SLRs, the camera I felt best suited my current needs was the Sony Alpha 7R II. In terms of weight, the Sony system offers significant savings compared to a full-frame digital SLR kit. Because the camera and Zeiss Sony E-fit lenses are less bulky, the camera bag does not need to be so large and that too can be lighter. I was able to save further weight by purchasing a slightly lighter carbon-fibre tripod.

From a technical viewpoint, the Sony Alpha 7R II system sensor is the same size as a full-frame DSLR and there is the same opportunity to shoot with shallow focus. In recent years, Sony has established a good reputation for developing high-resolution CMOS sensors for the professional market. The Nikon D800 and D810 both use the same Sony sensor as the Sony Alpha 7R. The Sony 50MP medium-format-sized CMOS sensor is used in the Hasselblad H5D-50c, the Phase One IQ250 back and Pentax 645Z camera. I have tested the above

**Right: 'Ian' taken with the Sony Alpha 7R II**  
70mm, 1/200sec at f/8, ISO 400



## 'Portability has become an important issue. Getting older certainly hasn't helped!'

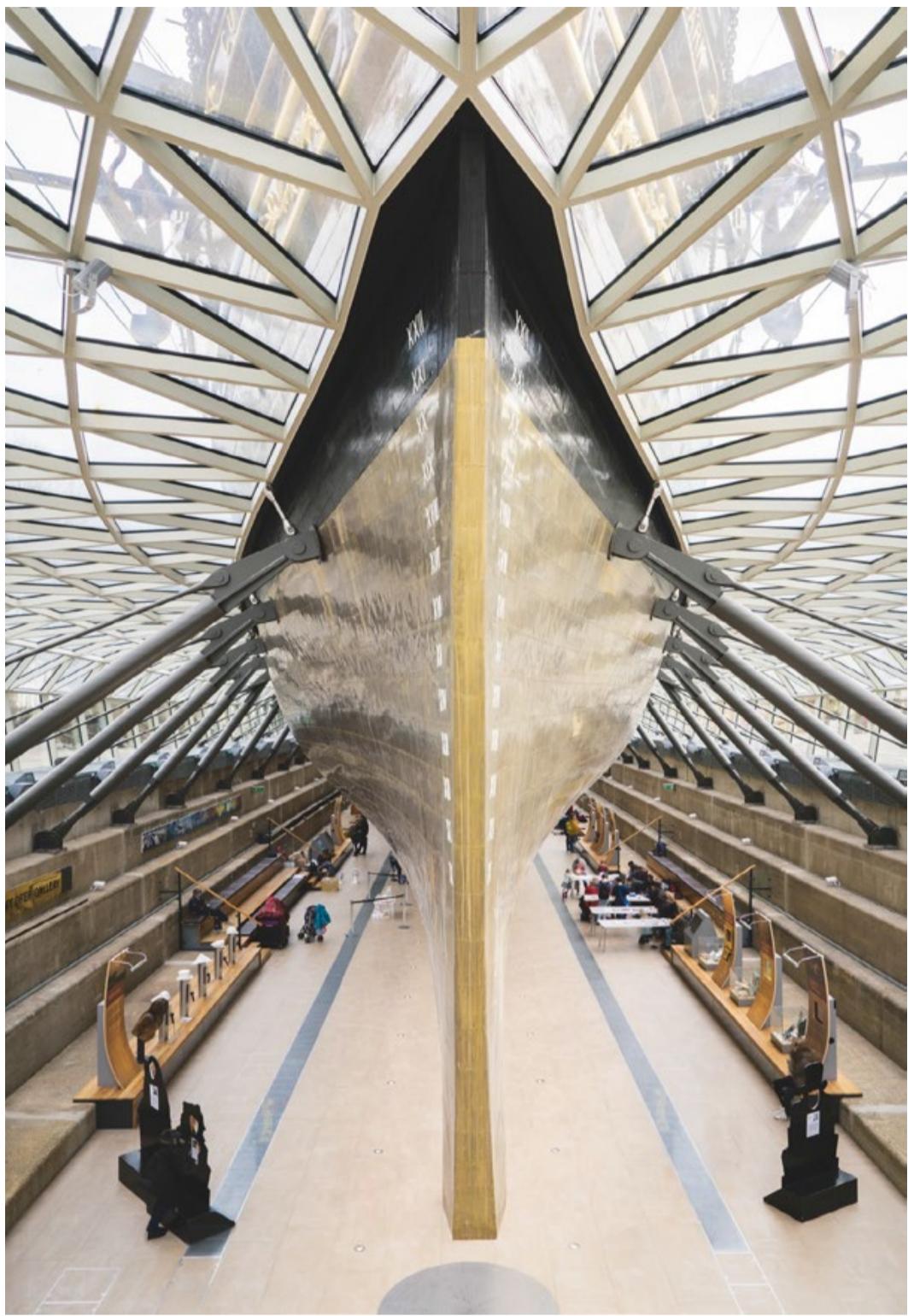
Hasselblad and Pentax cameras, and been impressed with the sensor image quality. The Alpha 7R II sensor has 42MP, making it higher than the 36.3MP Nikon D810, but slightly lower than the 50MP Canon EOS 5DS. However, at this level it is more important to focus on the sharpness of the lenses rather than the absolute megapixel count. For this reason, I decided to purchase a Metabones IV Canon EF to Sony E-mount converter so I could continue to use my favourite Canon lenses.

Shooting with the Sony Alpha 7R II takes a little while to get used to. The default settings let you review your shots immediately after taking a picture. I found this distracting and especially annoying when photographing people or following a moving subject, so I chose to

disable this. The autofocus system includes face recognition that ensures faces are captured as sharply as possible, and this calculates the optimum focus distance when photographing groups of people.

When using an EVF, it is important that you can rely on the autofocus to work accurately, and for the most part it does this really well. Manual-focus mode is accessed by lightly depressing the shutter while adjusting the manual-focus ring. This briefly magnifies the viewfinder/LCD display view, allowing you to see a close-up view and fine-tune the focus accordingly. It is a lot quicker compared to the steps that have to be taken using a regular DSLR in Live View mode.

The battery consumption of the Sony Alpha 7R II is



**Left:** 'The Cutty Sark', taken with the Sony Alpha 7R II 24mm, 1/160sec at f/8, ISO 800

**Above:** 'Mount Vernon Hospital Car Park', taken with the Fujifilm X-E2 55mm, 1/420sec at f/8, ISO 200

higher compared to an APS-C-sensor camera using similar-sized batteries and is most likely due to the EVF draining more power. In practice, I found I needed to switch batteries after taking around 200 shots. This meant carrying a few spares when going on location. The high megapixel size should also require a rethink when estimating the optimum minimum shutter speed for handheld photography. When shooting with a non-stabilised lens, the shutter speed should be at least double the focal length of the lens. So when shooting with a 50mm lens, the shutter speed should be at least 1/100sec. When photographing with a high-resolution sensor, you'll want to think about doubling that again. This is an important consideration for all high-resolution sensor cameras. However, the Sony

Alpha 7R II body has a built-in 5-axis optical-stabilisation system, which is enabled for all its system lenses. Consequently, I found it was possible to shoot handheld at slower shutter speeds and achieve sharp results, thanks to the internal camera stabilisation.

#### Movie capture

The Canon EOS 5D Mark II was the first digital SLR to offer movie recording, so photographers and videographers had the opportunity to shoot video to a full-frame-sized sensor, giving the footage shot a cinematic look. I have shot video using both a Canon EOS 650D and EOS-1Ds Mark II, but have always been frustrated by the limited capture rates on these cameras. Now, it is possible to use a free Magic Lantern firmware update to override this on the Canon cameras,

but doing so invalidates the camera warranty. Serious moviemakers will want to use something like the Canon EOS C100, which does offer broadcast-quality capture rates. Meanwhile, the mirrorless Panasonic Lumix DMC-GH3, which was launched in 2012, offered HD recording at video bit rates of up to 72 Mbps, and its successor, the GH4, has a maximum video bit rate of 200 Mbps in HD mode plus 4K recording.

The ability to record good-quality video is also about the codecs and recording format used, but the latest Lumix cameras are without doubt capable of capturing professional-quality video. In fact, a friend recently used a GH3 with a Metabones speed adapter and Canon lenses to shoot a documentary for BBC Four. The Sony Alpha 7R II provides HD recording at 24Mbps using AVHCD and 4K recording at 100Mbps using XAVC S. Early tests show a noticeable improvement in the image quality of video recordings.

#### APS-C alternatives

APS-C-sized sensor mirrorless cameras can offer even bigger weight savings. Around the same



time I purchased the Sony Alpha 7R II, I was given a Fujifilm X-E2 camera in order to evaluate the performance of the X-Trans sensor. The Fuji X-Trans sensor has been a remarkable success story. As a reviewer of *Amateur Photographer* reader photographs, I have always been impressed by the sharpness and colour rendition of photos shot using Fuji X-series cameras. Despite being only 16MP, photographs shot using this sensor have always stood out, while the latest Fuji X-Pro2 sees the sensor megapixel size increased to 24MP.

Fuji's philosophy has been to make its mirrorless cameras as compact as possible. This is why Fuji favoured basing its system on an APS-C sensor, with lenses designed specifically for the APS-C sensor size within a mirrorless body. As a result, the Fuji system lenses are mostly smaller compared to the lenses designed for digital SLR APS-C-sensor cameras. The weight difference can be dramatic. For example, the X-E2 camera body plus a 15-55mm kit lens weighs just under 700g. The Pro versions plus Fuji system lenses have proved popular with demanding

**Above: 'Horse and stable', taken with the Fujifilm X-E2**  
28mm, 1/350sec at f/8, ISO 800

professional photographers, and I was pleased with the quality of the photographs taken with the X-E2. I found the electronic viewfinder to be fast and responsive, and the images acceptably sharp using the standard kit lens. When processing Fuji X-Trans photos in Camera Raw or Lightroom, you may notice a slowdown in the time it takes to render the full-size previews. This is because the demosaic process with this particular type of sensor is more complex. However, once rendered, the previews can be accessed without incurring extra delays.

### Conclusions

I don't see all photographers ditching their digital SLRs and replacing them with mirrorless cameras. On professional shoots, there is still the expectation you need a big-looking camera to take big shots. If you shoot sports or wildlife photography and use huge telephoto lenses, does it really make much difference if the camera body is a few grams lighter? Also, to follow fast-moving action, an optical viewfinder would still be preferable. Without doubt, full-frame DSLR cameras such as the

Canon EOS 5DS or Nikon D810 can capture sharp images with a good dynamic range. The Sony Alpha 7R II is just as capable, giving you the option to shoot with your favourite Canon, Nikon or third-party lenses, or with the more compact Sony system lenses.

So did I save as much in weight as I had expected? After adding up the weight of the camera bag plus camera system and tripod, the total weight of my 'on-the-road' Sony Alpha 7R II kit came to just over 5kg, compared to 7kg for the APS-C Canon kit. This wasn't quite as big a saving as I had hoped for, but even so, it is certainly lighter than a full-frame Canon kit. In the end, I was reluctant to get rid of all my digital SLR equipment, but overall, the Sony Alpha 7R II feels like a good fit not only for the type of photography that interests me now, but also my desire to travel light. Above all, it is the quality of the captures that matters most and on that score I have been very happy with the results from the Sony Alpha 7R II. All in all, I have been won over by the ease of use of this camera as well as its video-shooting capabilities.

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**To enter via email**, follow the link at the bottom of this page. We need to know where and how you took your image, plus the camera and lens used with the aperture and focal-length details. Remember to include a telephone number and your postal address so we can contact you if you win.

**To enter by post**, send a covering letter with your image, including the information mentioned above, letting us know if you would like your entry returned to you after judging (please enclose an SAE). Entries should be sent to APOY, Amateur Photographer, Pinehurst 2, Pinehurst Road, Farnborough Business Park, Farnborough, Hants GU14 7BF.

## Plan your APOY 2016 year

Below is a list of this year's rounds, a synopsis of what we're looking for and the dates they will be announced. When you are planning your entry, remember to take into consideration the criteria of fulfilling the brief, creativity and technical excellence on which you will be judged.

Theme	Synopsis	Announced	Closes	Results
Sense of Doubt	Abstract images	5 Mar	27 Mar	30 Apr
Width of a Circle	Creative wideangle	2 Apr	1 May	28 May
Soul Love	Portraiture	7 May	29 May	25 June
Scary Monsters	Wildlife at home and abroad	4 June	26 June	30 July
Little Wonder	Macro (insects/flowers/plants)	2 Jul	31 Jul	27 Aug
A Small Plot of Land	Landscapes and cityscapes	6 Aug	28 Aug	24 Sep
<b>Big Brother</b>	<b>Street photography</b>	<b>3 Sep</b>	<b>25 Sep</b>	<b>29 Oct</b>
Blackout	Black & white	1 Oct	30 Oct	26 Nov

**How to enter via email:** For full details of how to enter via email and for terms and conditions, visit [www.amateurphotographer.co.uk/apoy16](http://www.amateurphotographer.co.uk/apoy16)

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## This month's prize

Win a Sigma 24-35mm f/2 DG HSM lens and a Sigma 82mm WR ceramic protector

The winner of APOY round seven will receive a Sigma 24-35mm DG HSM lens, the world's first large-aperture full-frame wideangle zoom lens offering f/2 brightness throughout the zoom range. This allows photographers to carry one lens to do the work of three fixed-focal-length lenses (24mm, 28mm and 35mm) with top optical performance. Also, the inner focusing system eliminates front lens rotation, enhancing the stability of the lens and allowing the use of circular polarising filters. This specification

is particularly convenient for shooting video. The Super Multi-Layer Coating reduces flare and ghosting, and provides sharp and high-contrast images even in backlit conditions. The Hyper Sonic Motor (HSM) ensures a silent, high-speed AF function. By optimising the AF algorithm, smoother AF is achieved.

The winner will also receive an 82mm ceramic protector to ensure the lens remains dust and scratch free.

That brings the Sigma prize total to £1,054.98.

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Events on the street can  
happen at both micro  
and macro level



## Round Seven **Big Brother**

Street photography is as popular as it ever has been, and is perhaps the most accessible genre available to photographers. Even if we don't live in a street alongside other people, we almost certainly travel to, and work in, places where the rich tapestry of street life chugs along like a well-oiled machine. All you have to do is photograph it, and show the rest of the world what happens in that location. There can be a great temptation to head to the biggest, most bustling, place you can find, but you really don't need to. Street photography can be shot as easily beside the quiet and seemingly empty village post office as it can among the maddening crowds that stream past the Bank of England. The trick is to develop a keen eye for candid moments. Events on the street can develop both at the micro and macro levels – spend some time observing locations and the behaviour of the people who inhabit it. Even the most subtle scenes can lead to images that are utterly captivating. Turn the page for some tips and ideas.

# Round Seven Street photos

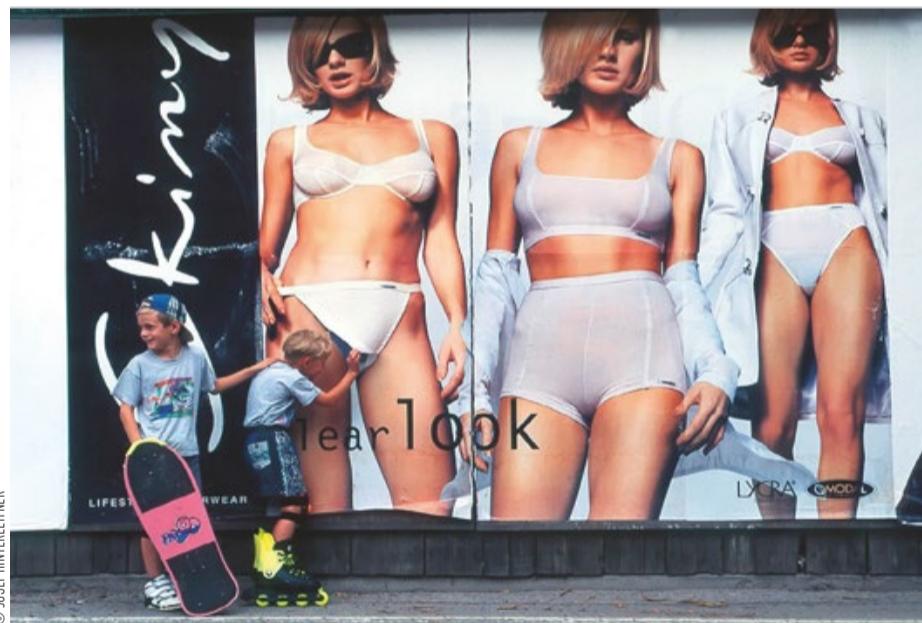
A few tips to set you on your way to shooting street photography



© JANIE YANG

## Shapes and lines

EVERY street structure we see is made from lines and shapes, and you should make the most of them to create impact in your pictures.

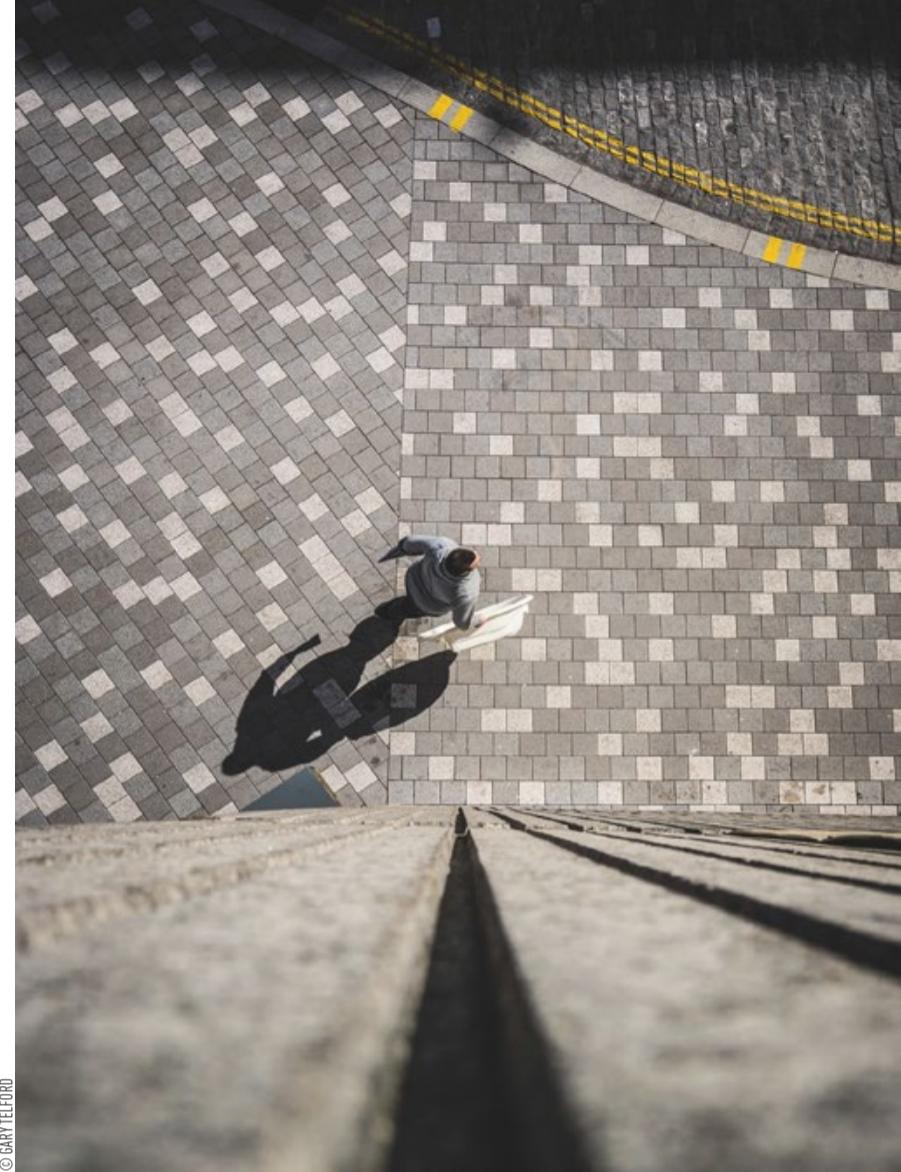


© JOSEF HINTERLEITNER

## The absurd

THE PEOPLE we encounter on the streets are certainly a strange bunch. One of the hallmarks of street photography is recognising absurd and strange situations, and then reacting quickly, as we see in this image.

**RULES** 1. Entrants may submit only one photograph per month, as an sRGB JPEG file that is 2700-3000 pixels along its longest dimension, an unmounted print (max size 210 x 297mm) or slide (no glass mounts please), in colour or black & white. 2. The entrant's name, address and daytime phone number must be attached to the slide mount or the back of the print. 3. You may only submit digital files by email (no CDs/DVDs). When submitting a digital file, the file name of your image must be your first name and surname, the subject line of your email message must state the round name and your name once again, and the body copy of your email must include your name, address, daytime telephone number, the camera model, lens and exposure details. 4. Photos submitted must be your own work, must not be copied, must not contain any third-party materials and/or content that you do not have permission to use and must not otherwise be obscene, defamatory or in breach of any applicable legislation or regulations. If Time Inc (UK) has reason to believe your entry is not your own work or otherwise breaches this rule, your photos will NOT be considered. 5. Photos must not previously have been published in a national UK photography magazine. 6. Copyright of all entries remains with the photographer, but Time Inc (UK), Sigma and their associated group companies reserve the right to reproduce your photos in electronic format and hard copy including for display at an exhibition, in Time Inc (UK)'s Amateur Photographer magazine and on Time Inc (UK)'s and Sigma's websites and social media should they be selected to promote the competition. 8. You grant Time Inc (UK) and Sigma the right to use your name and town or city of residence for the sole purpose of identifying you as the author of your photos and/or as a winner or runner-up of the APOY competition. 9. Each postal entry must be accompanied by a covering letter, including your name, address, telephone number and image/camera details. All submissions must be well packaged in a stiffened envelope (no tubes, please) bearing sufficient postage, and entrants wanting their picture back must include a stiffened SAE stamped of sufficient value for their return. 10. This competition is open to bona fide amateur photographers and students only. That is, entrants should not earn more than 10% of their total annual income OR £5,000 annually from photography. 11. Employees of Time Inc (UK), Sigma and their families may not enter this competition. Entries are judged by AP staff. 12. There is no age limit for entering, and international entries will be accepted. 13. Prizes are as stated and no cash or other alternative can be offered to the monthly prizes or overall prize. 14. Prize value correct at time of going to press. Overseas winners will be contacted about how to claim their prize, although entrants who live outside the UK who win a prize will be liable for any local customs charges and enter at their own risk. Sigma has the right to substitute a prize for a similar item of equal or higher value if the stated prize is not available. No money can be added to the overall prizes. The overall first prize for the APOY 2016 competition will be to win Sigma products to the value of £2,000 RRP as at the date of notification. 15. Prizes are subject to Sigma standard terms and conditions for its products. Acceptance of a prize is deemed to be acceptance of those terms and conditions. 16. Entries on behalf of another person will not be accepted and joint submissions are not allowed. 17. No responsibility is taken for lost, delayed, misdirected or incomplete entries. Proof of delivery of the entry is not proof of receipt. 18. No purchase is necessary. 19. In the event of a tie, the Editor will choose a winner. The Editor's decision is final and no correspondence will be entered into. 20. By submitting photos you are accepting these rules. 21. Time Inc (UK), Sigma or their associated group companies shall not be liable for any loss, damage or injury of any nature howsoever caused, sustained by any entrant under this promotion. However, nothing in these rules shall have the effect of excluding or restricting liability for personal injury, death, fraud or fraudulent misrepresentation caused by the proven negligence of employees or agents of Time Inc (UK), Sigma or their associated group companies. 22. 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## Fresh angles

MAKE your pictures stand out. Shooting from waist level is a good start, and for a more dramatic angle you could place the camera close to the ground to give your subjects a dramatic presence. Or, as in this picture, get high up and shoot downwards.



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# Accessories

Useful gadgets to enhance your photography, from phones to filters...

## Nissin Air 1 Commander & Air R Receiver

● Around £105 ● [www.nissindigital.com](http://www.nissindigital.com)

### Callum McInerney-Riley

looks at the latest flash trigger system from Nissin, available in Sony, Nikon and Canon fit

NISSIN is one of the leading third-party producers of flashes and flash-related accessories. The Nissin Air 1 Commander and Nissin Air R Receiver kit are little gadgets that allow users to fire their flashguns off-camera. They work by attaching the commander to the top of the camera and the receiver to a flashgun. Both proprietary or third-party flashguns are compatible, providing users use Canon-fit flashes with the Canon receiver, Sony-fit flashes with the Sony receiver and Nikon-fit flashes with the Nikon receiver.

Arguably, the biggest draw is TTL metering with  $\pm 2$ -stop compensation available in  $\frac{1}{2}$ -stop increments, which is useful for changing light conditions or when snatching a quick shot. In addition, there's a manual option that allows users to control the flash from full to 1/128 of the flash's power output. There's also high-speed sync and second-curtain sync available, which are good for creative lighting and capturing fast-moving action with flash.

The Nissin Air system uses a 2.6GHz radio frequency so doesn't require line-of-sight light like an infrared trigger. There are eight channels and A, B and C groups, so one can set up and control multiple flashes.

### Verdict

During testing, the Nissin Air 1 Commander and Air R Receiver performed brilliantly, and the distance stated by Nissin of 30m appeared accurate. Providing the flash was within that distance, there were no issues with misfiring. The LED display makes it easy to alter settings, and using the set-and-scroll wheel, it's quick to adjust and change what's required. The kit does lack  $\frac{1}{3}$ -stop-increment control and the range is limited compared to other wireless triggering systems. But for anyone just getting into off-camera flash, it boasts practically everything you could ask for and makes it easy to learn and use.

**Amateur  
Photographer**  
Testbench  
**GOLD**  
★★★★★

### ALSO CONSIDER

#### Nissin Di700A

£169, [www.nissindigital.com](http://www.nissindigital.com)  
Nissin's first Air System product was the Di700A flashgun. This has the same technology as the Nissin Air R Receiver, allowing users to fire it from a Nissin Air 1 Commander. Why is this important? Well, this new addition has made the Nissin Air System more

versatile. Users now have the option to use Nissin Di700A flashes and add their own flashguns into the system via the Nissin Air R Receiver. This also works in reverse. If a user owns the Nissin Air 1 Commander and Receiver kit, they can add a Nissin Di700A to their kit for around £169 without paying for a further receiver.

### At a glance

- Wireless flash-triggering system
- Comes in Canon, Nikon or Sony versions
- Compatible with Nissin Di700A
- Full TTL, HSS and manual control



#### LED display

A small LED display on the top of the commander makes it very easy to see and change settings, especially for beginners.

#### AAA batteries

Power to the unit is supplied by two AAA batteries, which helps to keep the units small and compact.

#### AF-assist lamp

On the front of the commander is an AF-assist lamp, which helps with focusing, especially in low-light situations. This boasts an effective range from 0.7-5m.



# Manfrotto XPRO Over 5-section carbon-fibre monopod

● £169.95 ● [www.manfrotto.co.uk](http://www.manfrotto.co.uk)



Amateur  
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**GOLD**  
★★★★★

MANFROTTO'S XPRO range of high-end camera supports is designed for both enthusiast and professional photographers, and the XPRO Over 5-section carbon-fibre monopod has one of the highest specifications within the company's range. It is designed not only to be lightweight and compact, but also to offer an extensive length when at full reach.

Thanks to the carbon construction, the XPRO Over weighs just 620g which, when you consider its maximum extension of 176cm, is a very impressive size-to-weight ratio. Because of the five sections, it measures just 49cm when packed down, which meant it clipped nicely onto my backpack for easy carrying. It's possible Manfrotto could have made this product a bit lighter, but it has opted to use the same magnesium-alloy Quick Power Lock system that is featured on many of its latest 190 and 155-series tripods. Having tested many of these tripods, I can confidently say the system locks solid and is very durable. A maximum payload of 5kg is stated, but we often find Manfrotto's estimates to be rather conservative.

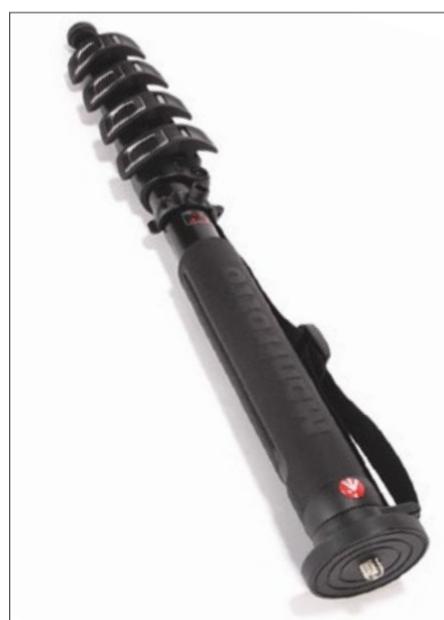
On the top of the monopod is a dual thread, which has both 1/4in and 3/8in options. On the base is a small rubber foot that screws into the bottom of the monopod. This makes it possible to swap it out for a spike or flatfoot to suit the shooting conditions. The company has also recently redesigned the leg-warmer grip; it is now rubberised, which gives a much firmer purchase on the monopod than the foam version.

If you're in the market for a monopod, and small size and lightness are imperative, then this accessory is an excellent choice.

**Callum McInerney-Riley**



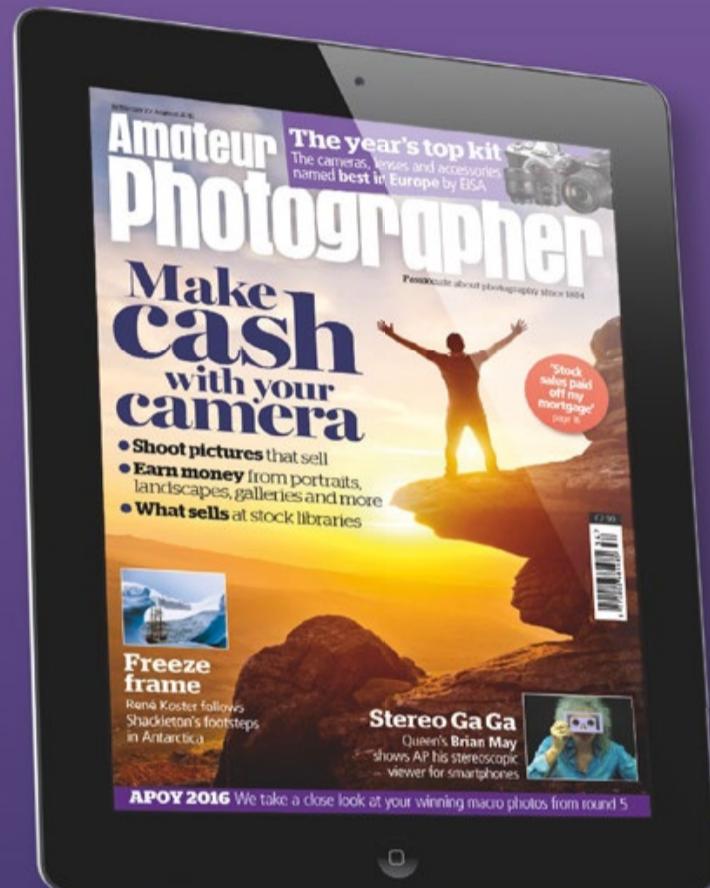
Like most Manfrotto products, the monopod uses quick-lever locks



The reversible attachment screw is compatible with most heads

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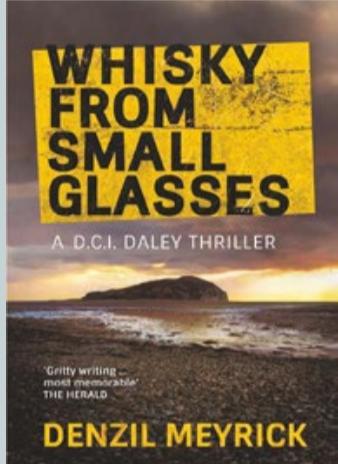
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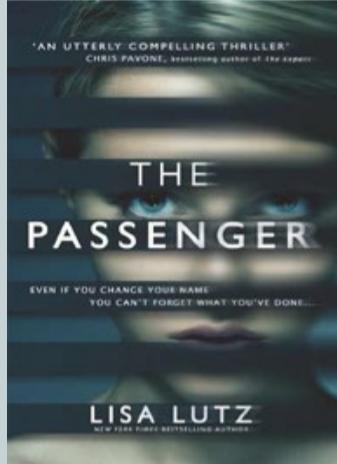
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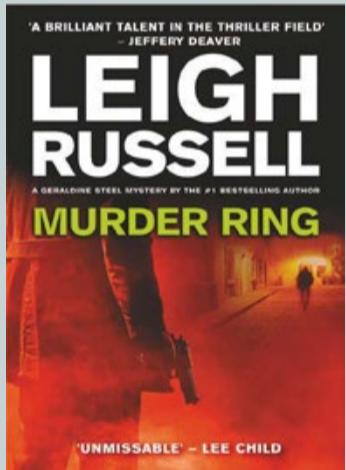
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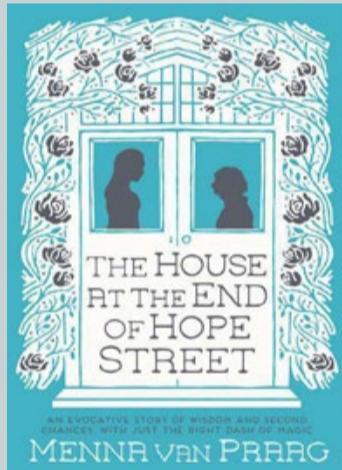
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We pitted the Nikon D7200 against the Olympus OM-D E-M5 Mark II to reveal the pros and cons of each system



# DSLR vs mirrorless

**Michael Topham** tries out both DSLR and mirrorless systems for action, landscape and low-light photography. He reveals which system he thinks is best when both are tested side-by-side

**A**s a photographer and reviewer on AP, I regularly answer questions from friends and readers of the magazine about what camera is the best to buy. Each query I receive tends to be slightly different, but the recurring question from those who would like a camera that accepts interchangeable lenses is, 'Should I buy a

mirrorless camera, or opt for a DSLR?' A few years ago, DSLRs were considered to have the edge over their mirrorless (i.e. compact system camera) rivals. Mirrorless models lacked the support of a wide range of lenses to match those available for DSLRs, and image quality was another area in which DSLRs had the upper hand. However, in the same way as the number of lenses for mirrorless systems has flourished, image quality has taken a leap forward to the point where many mirrorless cameras are now capable of achieving results on a par with many APS-C DSLRs.

Now that many of the initial criticisms have been ironed out – the poor resolution of their electronic viewfinders and sluggish autofocus being two examples – mirrorless cameras are a force to be reckoned with. I used to find myself pointing people in the direction of DSLRs ahead of mirrorless cameras, but the tide has definitely changed. It's long been said that mirrorless camera technology will eventually catch up with DSLRs, and with more and more mirrorless cameras finding their way into photographers' bags it suggests they already have.

There is the argument that for beginners and those on a tight budget, an entry-level DSLR still offers better value for money than an inexpensive mirrorless camera. For the more experienced amateur or enthusiast photographer, though, the decision is harder.

Take the Nikon D7200 and Olympus OM-D E-M5 Mark II, for example. These mid-range enthusiast models are both out to target the same consumer, they're similarly priced and both have won many accolades. After being asked for advice on which of these two I'd choose from an aspiring enthusiast looking for an excellent all-rounder, I decided I would make my decision based on putting the pair through stringent real-world challenges to find out their strengths and weaknesses in different shooting situations. My field test would start at a racetrack to find out which of the two is more successful for shooting sport and action. Then, during the following few days I'd challenge both landscape and low-light scenes before offering my conclusion on whether I'd choose a mirrorless model or stick with a DSLR.

Nikon D7200



The D7200's phase-detection autofocus system did a sterling job of keeping up with the speed of the action

## Challenge 1

# Sport/action

NOT TO overcomplicate things, I decided to keep my kit simple and carry a small bag for each system over my shoulders. Both cameras had lenses of similar focal length and price, and in the bag on my right was the Nikon D7200 with the Nikon AF-S DX Nikkor 16-80mm f/2.8-4E ED VR, Nikon AF-S Nikkor 70-200mm f/4G ED VR and Nikon AF-S Nikkor 50mm f/1.8G. These three lenses would be well suited to the three shooting conditions I had in mind and were a good match to the three lenses in the bag on my left, which had the Olympus OM-D E-M5 Mark II. For this system I opted for the Olympus M.Zuiko Digital ED 12-40mm f/2.8 PRO, Olympus M.Zuiko Digital ED 40-150mm f/2.8 PRO and Olympus M.Zuiko Digital ED 45mm f/1.8.

On arrival at the Brands Hatch motor-racing circuit in Kent, I loaded each camera with a fully charged battery and prepared for a busy day of motorcycle racing.

Inserting a Lexar Professional 633x 32GB SDHC card into both cameras revealed the first advantage of the D7200. Unlike the OM-D E-M5 II – and many other mirrorless cameras for that matter – the D7200 benefits from dual card slots, and this pro-spec feature is useful to have if you'd like to mirror or write different file formats to different memory cards.

Next, the cameras were paired with their respective telephoto zooms, and I headed in the direction of Druids bend where I knew the bikes would negotiate the corner at its slowest. This would be the perfect place to warm up to the speed of the action, and get accustomed to the responsiveness of each camera's autofocus system before moving onto faster areas of the track.

### Getting ready to shoot

It's not always the case that a camera with the fastest continuous



Olympus OM-D E-M5 Mark II

The success rate of sharp shots on the OM-D E-M5 II couldn't beat the D7200

burst is best for shooting sport and action. In the case of the OM-D E-M5 II, it has the potential to shoot at up to 10fps, but this figure drops to 5fps with autofocus. After setting the camera's drive setting to sequential L (5fps) and the autofocus mode to continuous AF, I set the AF area to its group of nine AF points and positioned these centrally in the frame using the directional buttons. When you compare it to its rival, the D7200 is capable of shooting continuously with autofocus at a slightly faster 6fps. I set up the D7200's

autofocus mode to continuous (AF-C) with the dynamic AF-area mode set to 9 points in the centre, and planned to experiment with the advanced 3D tracking mode as the day progressed.

I went into my first spell of shooting slightly sceptical of how well the OM-D E-M5 II's contrast-detect AF system would perform in this environment. I say this because I've yet to use a mirrorless camera that I'd consider to be as fast or as capable as a DSLR when it comes to keeping up with super, high-speed subjects. With the sound of the



The D7200's 3D focus tracking mode was used during the afternoon practice session

Nikon D7200



Nikon D7200

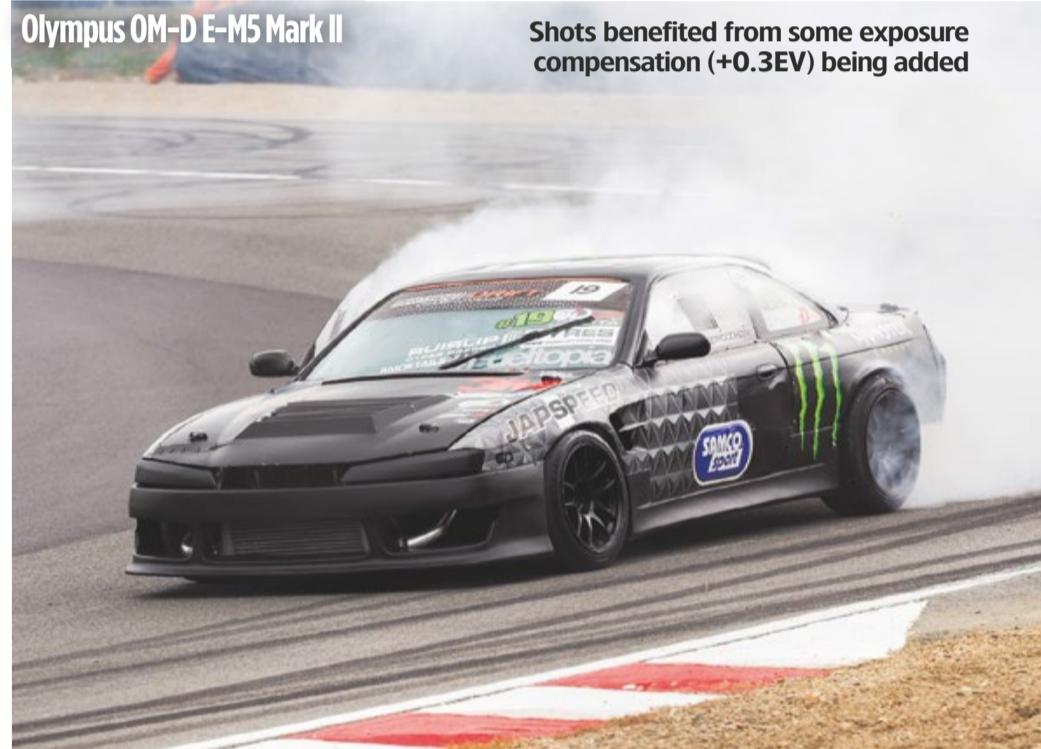
Olympus OM-D E-M5 Mark II

Shots benefited from some exposure compensation (+0.3EV) being added



The OM-D E-M5 II shoots at up to 5fps with autofocus

Olympus OM-D E-M5 Mark II



## 'I was averaging five out of six frames sharp with a success rate above 80%'

bikes approaching the corner for the first time, I lifted the OM-D E-M5 II's electronic viewfinder to my eye, hovered the group of focus points over the leading bike and tracked it through the frame.

I reached the camera's buffer within 11 frames and the writing of raw and Fine JPEGs to the card was slowing the process of being able to inspect them on the rear LCD. This encouraged my decision to shoot in the Fine JPEG format and disregard shooting in raw altogether. A magnified inspection on-screen revealed a reasonable success rate, with four of the six images in each burst appearing sharp. As the riders appeared on their second lap I was caught out by the OM-D E-M5 II's sluggish start-up speed after it had gone into sleep mode, resulting in a few missed frames. In comparison, I found the D7200 was much faster at firing into life and was ready to use at a moment's notice.

### Focus accuracy

The D7200's phase-detection autofocus system performed well from the get-go, showing no fuss focusing on the bikes as they cornered the tight bend at what I overheard were speeds of around 40-45mph. It didn't feel like the camera's AF system was being worked hard enough, so I moved along the track to a spot where the bikes would exit the bend at much higher speeds. At this location I had the chance to rattle out just five frames at 5fps on the OM-D E-M5 II as the bikes quickly came into view and accelerated towards and then past the camera at full throttle. On average, three out of five shots in my bursts were sharp and usable. Could this 60% success rate be bettered by the D7200?

A few laps later I repeated the same test with the D7200. With a DSLR in my hands I was able to shoot six to seven frames in the

same time that I could with the OM-D E-M5 II – one of the benefits of being able to shoot 1fps faster with autofocus. Several bursts of images later I reviewed my shots on-screen and discovered I was averaging five out of six frames sharp with a success rate above 80%.

Later in the day I experimented with both cameras' autofocus tracking modes. Within a few minutes of using the OM-D E-M5 II's continuous tracking mode I realised that it's not cut out for such a high-speed subject, and reverted to using continuous AF where I managed to get more in-focus shots of my subject. The D7200's 3D tracking mode is designed to let users lock focus on a subject with a single focus point before it attempts to track it across a scene. This 3D tracking method studies the colour of a subject and uses all available focus points on the camera to track it. It's different

to using Nikon's Dynamic AF-area mode, which only tracks within a specified 9, 21 or 51-point zone. I gave the D7200's 3D tracking mode a try for about an hour and came to the conclusion that for extremely fast and erratic subjects like motorbikes, I was able to get more consistently sharp results by tracking the subject movement myself with the camera set to its 9-point dynamic AF-Area mode.

Although the D7200 clinched it in this test, just as I thought it might, with its phase-detection AF, the responsiveness and accuracy of the OM-D E-M5 II's continuous AF did exceed my expectations. It reinforces my earlier point that mirrorless cameras are getting ever-closer to matching the performance of DSLRs, and in the future I have no doubt they'll one day be able to continuously focus and keep up with fast subjects just as reliably and as quickly as the D7200 did in this test.

# Challenge 2

# Landscapes

THE FOLLOWING day I set off to Dungeness on the Kent coast to find out if one system was superior to the other for shooting landscapes. The abandoned boat wrecks make great subjects on these shores. I hastily set up both cameras to make the most of the early morning light and clear blue skies, but like the previous day, I discovered it took longer for me to set up the OM-D E-M5 II. The D7200's larger body accommodates more body-mounted buttons and dials, which are well spread out and intuitively positioned. On the OM-D E-M5 II you're very reliant on the camera's quick menu (loaded by hitting the OK button) to access common variables, but as you become more familiar with the layout and

controls you do start to appreciate the potential of the customisation it offers.

Set to default, the Fn4 button on the top-plate is assigned to HDR mode, but I quickly discovered this is better appointed to ISO and white balance, which in turn are controlled with the front and rear dials on the top-plate. It's hard to fault the level of customisation the OM-D E-M5 II provides, but its convoluted menu is certainly more of a challenge to navigate than the D7200's.

## Taking landscape shots

My first landscape shot of the day was taken from a very low angle, and the OM-D E-M5 II's vari-screen transformed my shooting

experience in this situation. Instead of having to bury my knees in the shingle and struggle to compose my shot with a fixed screen, I was able to flip the screen out to the side and tilt it up slightly before using the Fn3 button to access live-view mode. The screen is touch-sensitive, making it a breeze to reposition the AF point, scroll and zoom in playback mode as well as select options from the quick menu.

Articulated and vari-angle screens with touch control have become commonplace on mirrorless models today, and it's their popularity that has forced DSLR manufacturers to implement the same technology. As the morning progressed I favoured using the OM-D E-M5 II for any images that I composed below knee height and yearned for a tilt display on the D7200 like the superb 3.2in 2,359,000-dot tilting touchscreen I have previously used on the Nikon D500.

Another feature I really warmed to for shooting landscapes is the OM-D E-M5 II's electronic viewfinder. It's perceived by some that electronic viewfinders will never be as good as the optical viewfinders found on DSLRs, but I have to disagree based on my experience of using both side-by-side. Out in the field it's handy being able to preview exposure and depth of field adjustments live – something you simply cannot do on a DSLR with an optical viewfinder.

On the D7200 I was chimping after virtually every shot and put a lot of this down to the fact that I couldn't see what effect my

Monochrome is one of six picture control modes available from the D7200's menu

Nikon D7200

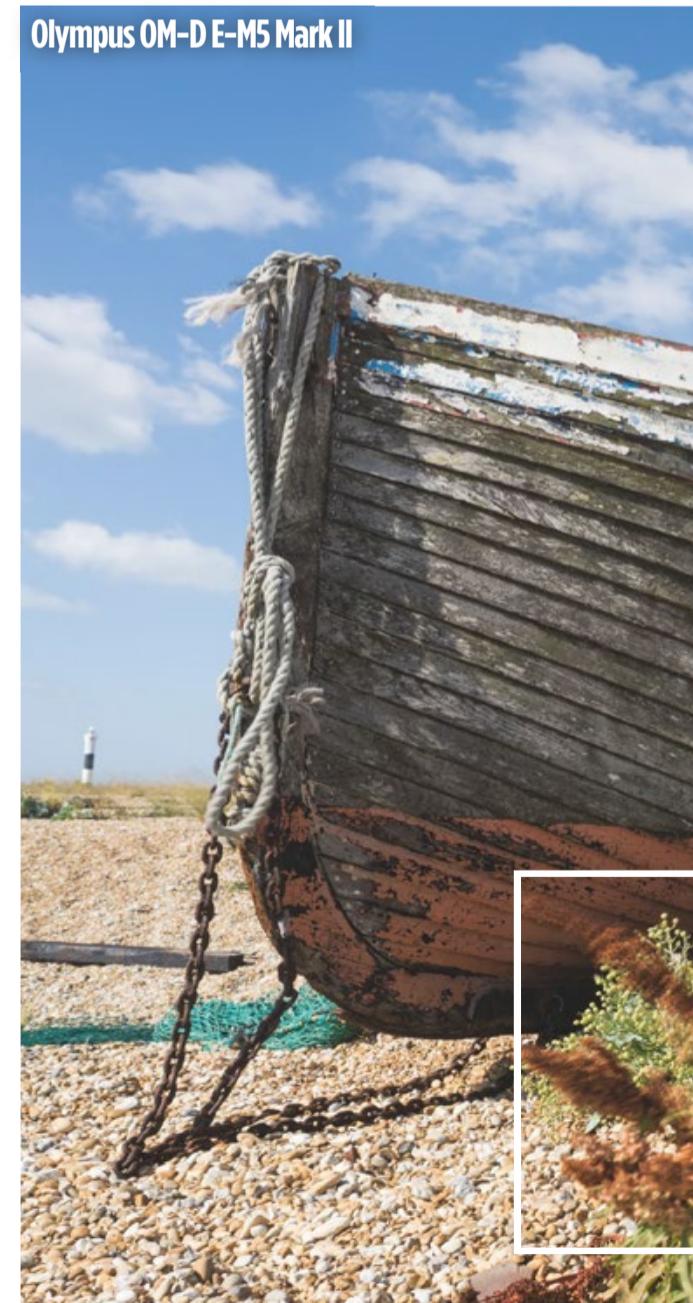


Olympus OM-D E-M5 Mark II

Low-angle shots are made easy with the OM-D E-M5 II's vari-angle screen and electronic-level functionality



Olympus OM-D E-M5 Mark II



changes to exposure variables were having until after the shot was taken. The benefits of an electronic viewfinder don't end here. The display can be overlaid with a wealth of information, including a live histogram and electronic levels, plus it acts as an excellent visual aid when you'd like to review images clearly in bright conditions. Although I rate the quality of the D7200's rear display highly, it felt as if I constantly had my hands cupped around it to prevent reflections interfering with what I could see.

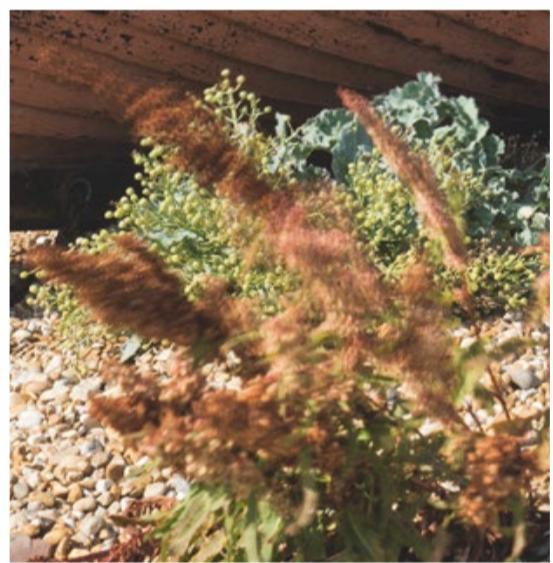
#### 40MP 'high res shot' mode

Later that morning I took the opportunity to experiment with the OM-D E-M5 II's 40-million-pixel composite 'high res shot' mode, which utilises the camera's in-body stabilisation system to move the sensor fractionally between frames before merging a series of eight images into one to produce an image with significantly higher detail. Rather helpfully, the camera also writes a conventional 16MP raw file of the first exposure with an 'ORI' extension, should you forget the camera is set to high res mode or you simply don't

## 'Vari-angle screens with touchscreen control have become commonplace on mirrorless models today'

have time to change it.

In principle, this mode sounds functional, but its usefulness in the outdoors, especially landscape photography, isn't all it's made out to be. Because it's a multiple-exposure process that takes at least a second to complete, this mode requires the camera to be fixed to a tripod and anything that moves shows as ghosting artefacts. Although the detail it's capable of resolving is very impressive indeed, I discovered that a light breeze is all it takes to render subjects blurred. For landscape photography where you're always going to come up against movement, whether it be a tree blowing in the wind or water running through the frame, it's not the most practical. Needless to say, after a few unsatisfactory attempts I reverted to shooting at 16MP.



**The 40MP 'high res shot' mode resolves impressive detail, but you need to be wary of moving subjects rendering as ghosting artefacts**



#### Nikon D7200



**The D7200 lacks a tilting screen, making it difficult to compose shots from knee-level or below**

#### Weighing up the pros and cons

Possibly the biggest attraction of mirrorless cameras for most photographers is their size and weight. Compared to the DSLR kit on my right shoulder that weighed just over 2.2kg on the scales, the mirrorless kit on my left shoulder weighed over half a kilogram less. At the beginning of the day, I didn't really appreciate the difference in weight between my two kit bags. A few hours later, having walked several miles up and down the coastline, I became more aware of the benefits of working with, and carrying, a lighter kit.

Opting for a mirrorless system isn't all about the weight of course, as there's lots to be said about the conveniences of working with a smaller sized system. The majority of my landscapes were taken with standard zooms, and I got into the routine of loading them back into the central compartment of their respective bags when swapping cameras. The Nikon kit was a snug fit for my bag and offered very little space for anything else. With the Olympus kit I was able to accommodate the telephoto and prime lenses in the same compartment, with ample space to free my trouser pockets of filters, keys, phone and wallet. If you're anything like me and feel like you're taking everything but the kitchen sink on a shoot, a mirrorless system can help to keep the overall weight of your kit down. This makes everything feel a bit more manageable when you're walking to your location.

Where there's a benefit there's often a compromise, and with mirrorless cameras it's often the case that the handling struggles to match the feel of a DSLR in the hand. Don't get me wrong, the OM-D E-M5 II isn't an uncomfortable camera to hold or use for short periods, but for extended durations, and when it's used with longer lenses, it really benefits from the L-shaped ECG-2 bracket. This adds a thicker hand grip and Arca-Swiss style tripod mounts along the bottom of the camera and up one side. Even with this accessory secured to the bottom of the camera, there was no contest as to which system I preferred handling. It's heavier, larger and bulkier, yes, but the handgrip on the D7200 is so much better sculpted. As DSLR handgrips go, for the average-sized hand it's one of the most comfortable, and this translates to a particularly enjoyable shooting experience.



**Nikon D7200**

Nikon's optical vibration-reduction system enabled me to shoot this low-light handheld image at 1/8sec



## Challenge 3

# Low light

FOR MY final challenge I took an evening saunter along the River Thames, where I'd get a chance to explore how each system copes with the demands of shooting in low light. My first stop was Tower Bridge, where the effectiveness of each camera's image-stabilisation (IS) system was put to the test.

First out of the bag was the D7200 which, unlike the OM-D E-M5 II, doesn't employ in-body stabilisation and uses an optical vibration reduction (VR) system built in to the lens to allow users to shoot up to 4 stops slower than is otherwise possible. In my case I had the Nikon AF-S DX Nikkor 16-80mm f/2.8-4E ED VR coupled to the front of the D7200. This VR optic is designed to compensate for three forms of movement (vertical, horizontal and diagonal) with its angular-velocity sensors detecting camera movement every 1/1000sec.

Lining up between the hordes of tourists and their tripods, I worked my way from 1/30sec to 1sec to

find out how slow I could shoot a pin-sharp handheld shot, half expecting camera shake to creep in at around 1/10sec. A magnified review on-screen revealed that with a steady hand shooting at the widest end of the lens (equivalent to 24mm), I was able to get away with shooting shake-free shots down to 1/8sec. Could the OM-D E-M5 II better this?

### Comparing image stabilisation

Olympus made a bold claim when it released the OM-D E-M5 II, stating that it has the most sophisticated image-stabilisation technology ever offered in an interchangeable-lens camera. In reality, the 5-axis voice coil motor (VCM) system, which causes the image sensor to float in magnetic suspension, does an exceptional job offsetting camera shake and promises to deliver 5 stops of compensation. The way 5-axis in-body image stabilisation compensates for camera roll,

**Olympus OM-D E-M5 Mark II**

The 5-axis image stabilisation system on the OM-D E-M5 II is extremely effective. It allowed me to shoot sharp handheld images as slow as 1/2sec

which can't be compensated for by in-lens IS, gives mirrorless cameras a significant advantage over DSLRs, and to date we've seen Olympus, Panasonic and Sony adopt 5-axis IS technology.

You only need to compose one handheld shot with IS switched off and another with it switched on to get an impression of how effective it is. But how does this equate in real-world use? Shooting at a wide focal length of 12mm (equivalent to 24mm) with All Directional Shake IS (S-IS1) mode switched on, I found I could shoot shake-free shots with a shutter speed of 1/2sec! Some owners of the OM-D E-M5 II and wider focal-length lenses claim they've

even achieved shake-free shots at shutter speeds of 1sec, which really puts its effectiveness into perspective. I regularly shoot in low light and can emphatically say I've never got away with shooting sharp handheld images with such slow shutter speeds before.

### Noise performance

Later that evening, I rattled out a series of images across the sensitivity ranges on both cameras. When these were inspected, it revealed that the OM-D E-M5 II's 16-million-pixel Four Thirds sensor, which is basically the same as the one used in the E-M5 three years ago, can't quite match the same level of



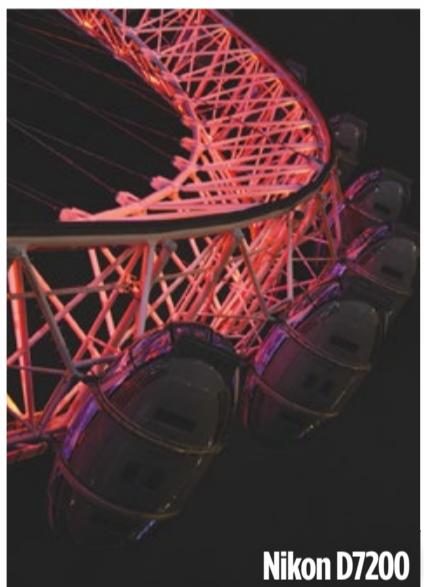
Olympus OM-D E-M5 Mark II

## I had 76% battery life remaining on the D7200'

image quality produced by the D7200's larger 24.2-million-pixel APS-C sensor. The detail the OM-D E-M5 II resolves in its raw files through its mid-to-low ISO range is excellent, but the D7200 shows its superiority as you begin to push towards ISO 3,200 and ISO 6,400. By being vigilant and applying some noise reduction to the D7200's raw files in post-processing, it's possible to achieve usable results at up to ISO 6,400. On the OM-D E-M5 II, I'd consider ISO 3,200 to be the limit at which I'd want to push on a regular basis. As my low-light images revealed, detail gets swamped by noise at ISO 6,400 or above, and is most noticeable in dark shadow regions.

### Battery life

A couple of hundred shots later, I noticed I had one bar of battery remaining on the OM-D E-M5 II whereas I had 76% battery life remaining on the D7200. One of the frustrations with mirrorless cameras, particularly power-hungry models like the OM-D E-M5 II, is that it doesn't take long before you're in need of your next battery. Those who don't want the kerfuffle of reloading a new battery into the OM-D E-M5 II after a couple of hundred shots will find the two-part HLD-8G



Nikon D7200

The D7200's 24.2MP sensor puts in a good performance up to ISO 6400

handgrip and HLD-6P battery compartment worthy accessories for the camera. When you compare the 1,100-shot battery life of the D7200 to the 310 shots per charge you get with the OM-D E-M5 II, it's clear that DSLRs have a substantial practical advantage over mirrorless cameras in this respect.

AP

The D7200's battery is good for over 1,000 shots



## Prices of camera kits tested

### DSLR

Nikon D7200 (body only) £714

Nikon AF-S DX Nikkor 16-80mm f/2.8-4E ED VR £769

Nikon AF-S Nikkor 70-200mm f/4G ED VR £1,039

Nikon AF-S Nikkor 50mm f/1.8G £169

Total: £2,691

### Mirrorless

Olympus OM-D E-M5 II (body only) £749

Olympus M.Zuiko Digital ED 12-40mm f/2.8 PRO £719

Olympus M.Zuiko Digital ED 40-150mm f/2.8 PRO £1,249

Olympus M.Zuiko Digital ED 45mm f/1.8 £179

Total: £2,896

## Our verdict

THE PURPOSE of this comparison was to highlight some of the practical advantages of choosing one type of camera system over another. In recent years we've seen manufacturers of mirrorless cameras work hard to close the gap on DSLRs, and although in some areas they do have their practical advantages, in others I feel they're still improving.

After using both systems side-by-side, I feel mirrorless cameras such as the OM-D E-M5 have come a long way in terms of their continuous AF speed. To date, I've only used one mirrorless camera that feels like it comes close to rivalling a DSLR's continuous AF speed and that's the Fujifilm X-T2. For serious photographers after the finest AF performance for fast action or low light, I still swear by recommending a DSLR, but I do get the sense that within a reasonably short time we'll see mirrorless systems catch up to the point where they're just as fast and just as capable.

For casual photographers who'd like to save space and reduce the load they have to lug around with them, mirrorless cameras are very appealing. The quality of their electronic viewfinders are now so

impressive it's no longer a reason to write these cameras off, and even die-hard optical viewfinder lovers like me can appreciate the benefit of being able to preview exposure and depth-of-field adjustments live.

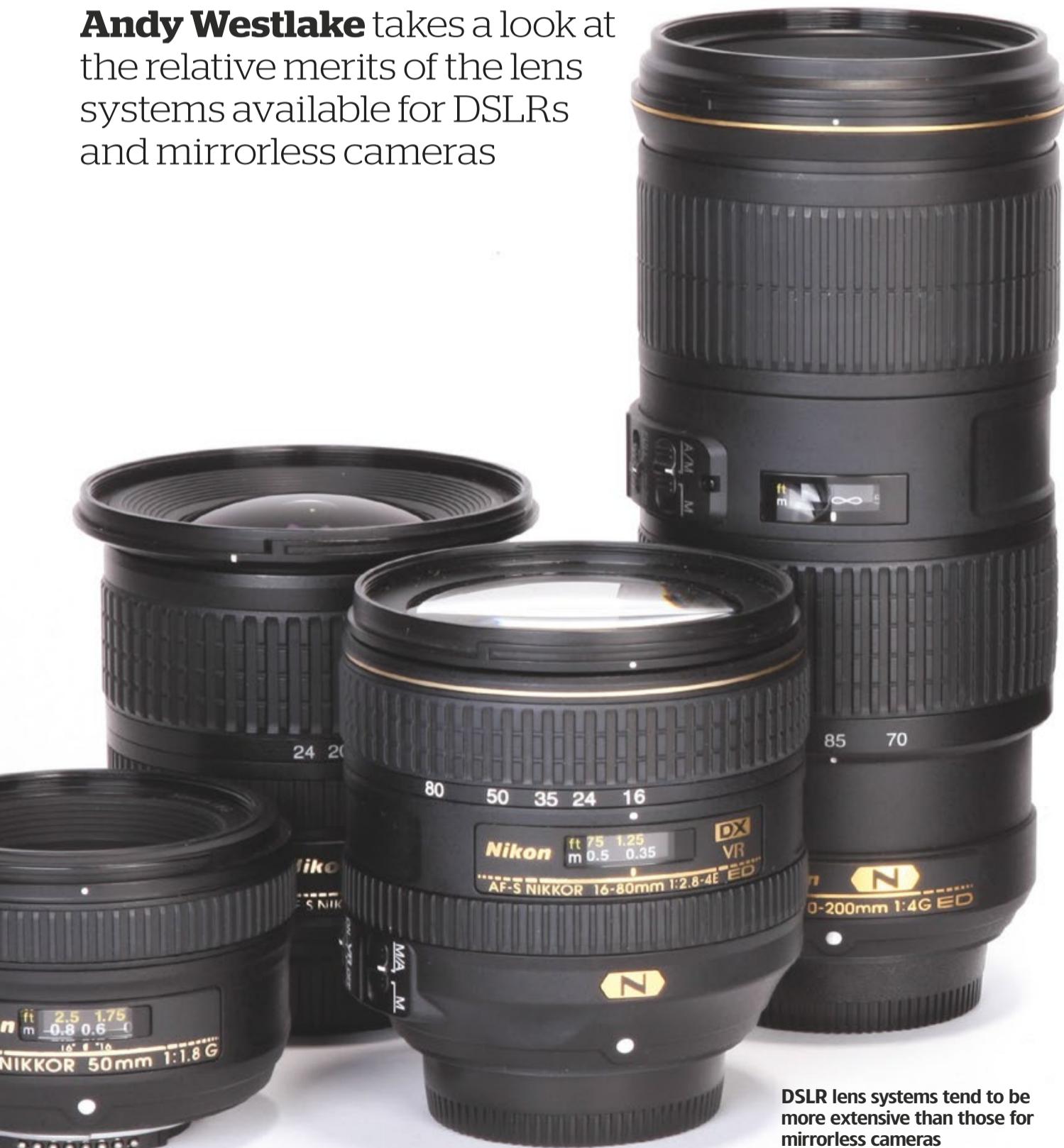
The bottom line is that there are advantages and disadvantages for each system. For anyone in the market for a camera right now it's all about weighing up the pros and cons and thinking carefully about the future. Investing heavily in a DSLR system and swapping over to a mirrorless system in a few years could be a costly exercise.

I must admit, with all things considered, my gut feeling tells me I'd still choose the D7200 ahead of the OM-D E-M5 II. For the subjects I shoot, which are mainly weddings and sports events, I require nothing but the best level of performance and image quality. I experienced first-hand that the D7200 is superior when both these things are considered.

In the future, I strongly believe mirrorless will be the dominant system and DSLRs will struggle to cling to their advantages. Maybe, one day, DSLRs will become relics that we look back at in the same way as we do film cameras.

# DSLR vs mirrorless lenses

**Andy Westlake** takes a look at the relative merits of the lens systems available for DSLRs and mirrorless cameras



DSLR lens systems tend to be more extensive than those for mirrorless cameras

Many photographers undoubtedly spend a great deal of time obsessing over cameras, and what they can and (perhaps more importantly) can't do. But ultimately, lenses are even more crucial in defining the scope of your creative endeavours. For instance, if you want to shoot wildlife from a distance, there's little point in having a camera that can shoot at 10fps if your longest lens is too short and can't really focus fast enough. So for anyone thinking of switching to mirrorless (CSC), it's important to appreciate that the main DSLR systems have been in existence for much longer, so still have rather bigger lens ranges.

In practice, this means that, particularly for anyone with specialist requirements, SLR systems still hold the aces. But it's also true that the main mirrorless systems have now been around long enough to have the major bases covered. Indeed, most enthusiast photographers should be able to find a set of optics from Fujifilm, Olympus, Panasonic or Sony to meet their core needs. All these makers offer wideangle, normal and telephoto zooms, along with macros and fast primes in the most useful focal lengths. However, there's less choice for any given type of lens, particularly with regard to third-party options from the likes of Samyang, Sigma, Tamron, Tokina and Zeiss. It'll probably also cost more to build up a lens collection.

Put like this, it might seem that when considering systems as a whole, switching to mirrorless is a poor investment. However the lenses tend to be modern, high-quality optical designs, with fast, silent and accurate focusing. It's also possible to make considerable savings in size and weight. So if you want to lighten the load on your shoulders without hugely reducing the scope of what you can shoot, mirrorless systems have a lot to recommend them.

**SLR system advantages**  
All the main DSLR systems have now been around for decades, and the manufacturers have built up large lens ranges covering everything from entry-level to professional lenses, often with a couple of tiers in-between. Canon and Nikon users in particular are spoilt, and can buy into either system knowing that not only can their first steps in building up a

lens collection be relatively inexpensive, but also every conceivable specialist optic will be available down the line should they need it.

Let's take a look at everyday standard zooms. DSLRs usually come with an 18-55mm lens attached, but when the user decides it's time to upgrade to something better, there's a wide choice of lenses with different focal lengths and aperture ranges.

For example, Canon users can choose from the firm's 18-135mm f/3.5-5.6, 18-200mm f/3.5-5.6, 15-85mm f/3.5-4.5 and 17-55mm f/2.8 options, while Sigma offers 17-70mm f/2.8-4 and 17-50mm f/2.8 lenses, alongside the ultra-fast 18-35mm f/1.8 and several long-range superzooms. Tamron has the broadest-ranging superzoom of all, with its 16-300mm f/3.5-6.3, alongside a fine 17-50mm f/2.8. All said, there are 10 or more lenses to choose from, allowing photographers to pick whichever lens best suits their needs.

This is by no means an isolated example – in all areas, DSLR systems offer a wider choice. You can get both premium f/1.4 primes and cheaper alternatives in the f/1.8-f/2.8 range and top-notch f/2.8 or f/4 zooms, as well as cheaper consumer zooms with variable maximum apertures. If you want some really exotic optics – long telephoto primes or tilt-and-shift lenses, for example – this is where you'll find them.

There are, however, some caveats to this. While both Canon's and Nikon's lens ranges are huge, they include relatively few optimised for the APS-C sensor format, which is by far the most common. Canon has just 11 distinctly different EF-S options, while Nikon has fewer than 20 DX lenses, if you disregard the multiple versions of its 18-55mm kit zoom. In particular there are relatively few primes specifically designed for APS-C DSLRs, especially wideangles. So in some areas, APS-C DSLR users are a little short of choice.

Meanwhile, Pentax has a rather small current range, and while it includes arguably the strongest set of APS-C-optimised primes, there are currently just 12 full-frame lenses to go with the K-1. Sony's Alpha-mount lens range can't really match the big two, either, and is balanced more towards full

frame. But users of both these systems do have a massive back catalogue of second-hand lenses to choose from, along with plenty of third-party options.

### Mirrorless advantages

While DSLR lens systems may be more extensive, those for mirrorless cameras have their own merits. They tend to use modern optical designs, and this means that in general, the image quality is very high. The ranges are usually optimised for a single sensor size too, rather than being a mixture of full-frame and APS-C designs.

This is important, as purpose-designed optics will often be both smaller and sharper compared with using full-frame designs on the smaller sensor. So Panasonic's and Olympus's lenses are all Micro Four Thirds, while Fujifilm X and Canon EF-M are for APS-C. Sony's E-mount is one of the few

exceptions, having been originally designed for APS-C before the firm managed to shoehorn in a full-frame sensor. However, the lens ranges for both formats are about equally well developed. Leica's L mount is also dual format.

Because the mirrorless design allows a shorter flange distance from the lens mount to the sensor, lens designers also have more freedom in terms of optical design. Again this potentially allows the creation of sharper lenses, but it also allows them to be made smaller. The biggest advantage comes with wideangle lenses; where those for DSLRs tend to be large and bulky, CSC equivalents can be considerably smaller.

Sometimes it's even possible to make lenses that wouldn't be practical for DSLRs. For example, Fujifilm's rather fine XF16mm f/1.4R WR has no match in the APS-C SLR world, and is

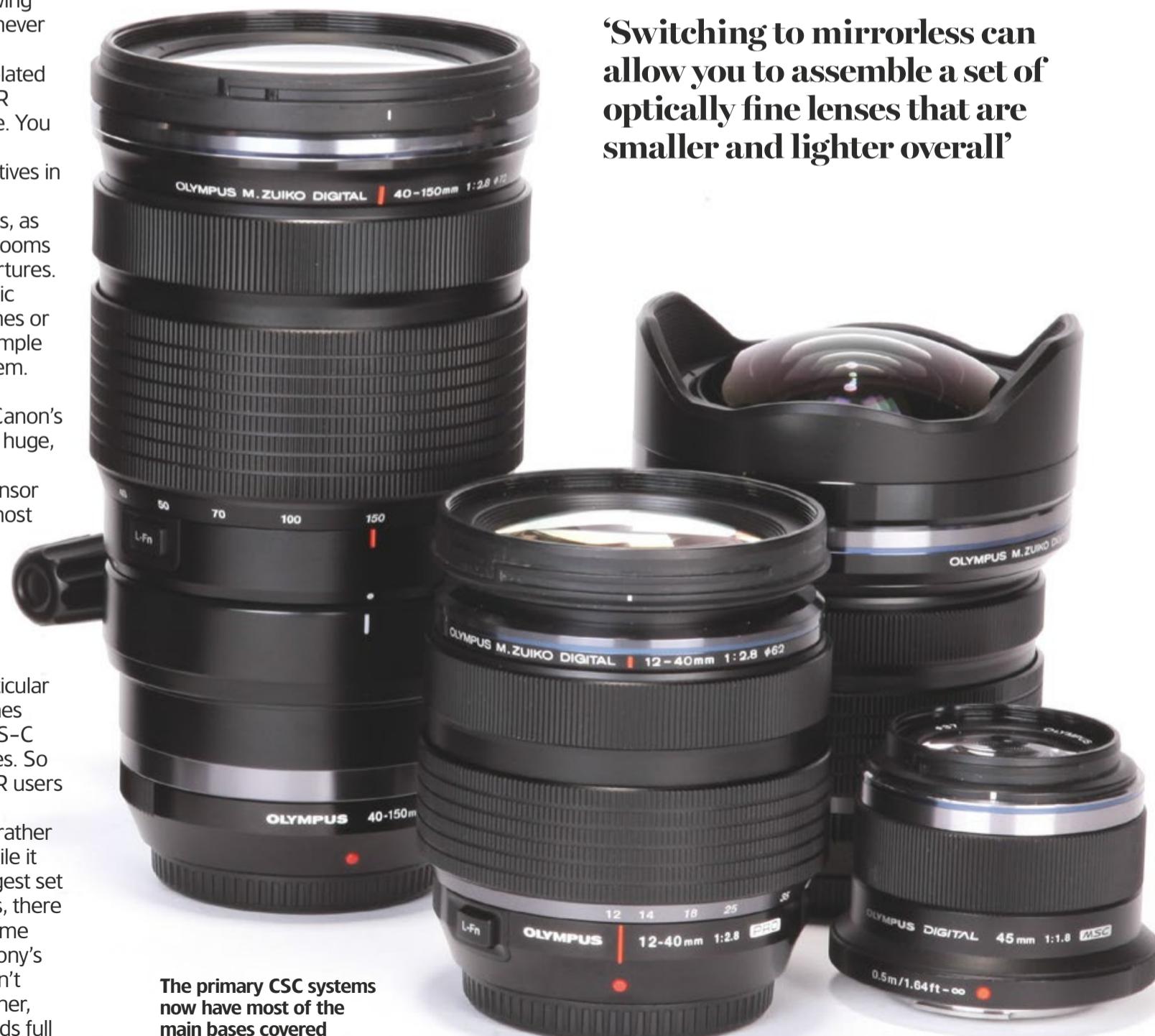
considerably smaller than Samyang's 16mm f/2, despite being a stop faster.

Overall, this means that switching to mirrorless can allow you to assemble a set of optically fine lenses that are smaller and lighter overall than a similar DSLR setup, even if there's little difference in some individual lenses. This has a knock-on effect with all your accessories, too – for instance, you get to use smaller and cheaper filters, a lighter weight tripod, and fit everything into a smaller bag. Alternatively, you can carry more lenses for any given weight of kit, giving you more compositional options.

### Using DSLR lenses on mirrorless

If you have a DSLR lens set and want to try using a CSC, you might be wondering whether you can just continue to use your

**'Switching to mirrorless can allow you to assemble a set of optically fine lenses that are smaller and lighter overall'**



The primary CSC systems now have most of the main bases covered

existing lenses via mount adapters. In general, the answer is that while it's possible, it's rarely very satisfactory. It's generally only a realistic option if you buy a CSC of the same brand as your DSLR, and even then, may not work terribly well in practice.

Canon, Nikon, Olympus, Panasonic and Sony all make mount adapters that allow their SLR lenses to be used on their CSCs, with full functionality including such things as aperture setting from the camera body, optical image stabilisation and autofocus. Some other companies sell electronic adapters that allow you to use your lenses on a different brand body, for example Canon EF lenses on Sony CSCs, with the leading brand being Metabones (although its products are distinctly expensive). But, with the honourable exception of the Sony LA-EA4, which has a built-in phase-detection autofocus (PDAF) system, all these set-ups tend to suffer from the same problem to some degree – namely slow and hesitant focusing. This is because DSLR lenses that have been purpose-designed for PDAF don't tend to work well with the contrast-detect AF systems used by CSCs.



## Canon

Canon's huge DSLR lens range includes no fewer than 30 full-frame EF primes and 21 EF zooms. These range from 11mm to 800mm and cover a wide range of price points, starting at less than £100 for the EF 50mm f/1.8 STM. Canon also offers 11 distinctly different made-for-APS-C EF-S lenses, with a good choice of standard zooms to suit different needs and budgets. However, the EF-M range for its CSCs is disappointingly small.

## 'For anyone with specialist requirements, SLR systems still hold the aces'

### Autofocus

Lenses for DSLRs are designed to work with PDAF, which from a single measurement can tell the camera exactly how to drive the lens's focus group to achieve correct focus. So their autofocus motors are designed specifically to shift the focus group from one point to another as quickly as possible, with ultrasonic motors doing this particularly well. But the challenge for CSC lenses is somewhat different; instead, focusing requires a larger number of very precise smaller movements. Because of this, CSCs generally use small, light focus groups driven by highly accurate stepper motors. Indeed, this was one of Panasonic's key design breakthroughs with the original Lumix G1 and its accompanying set of lenses.

However, these two methods aren't particularly cross-compatible. While DSLR lenses designed for PDAF can be made to focus using contrast detection, it tends to be a slow, jerky process. This means most DSLRs focus much more slowly in live view, and

DSLR lenses don't often perform well on CSCs. In contrast, lenses purpose-designed for CDAF can be lightning-fast, and still work well with phase detection. Because most CSC lenses are also designed with video in mind, they tend to autofocus incredibly quietly, and this can be a real advantage with some subjects.

Because CSCs use the main image sensor to determine focus, they tend to focus more accurately than DSLRs, especially with off-centre subjects or when using fast primes. There's also no need to mess around with AF Micro-adjust to match your lens to your camera.

### Lens design and software corrections

One controversial aspect of CSC lens designs is the use of software distortion correction. Companies such as Panasonic make lenses with considerably higher barrel distortion than usual, then correct it in software using a process that's so fully integrated into the system few users ever notice it's even happening – still less care. However, some critics have seen it



The smallest mirrorless cameras and lenses are tiny compared to even entry-level DSLRs

as the death of 'proper' lens design. A more logical assessment, though, sees it as simply a different way of designing lenses – not necessarily worse or better.

Historically, film camera lenses had to be optically corrected for distortion, because there was no possibility of fixing it at the printing stage. Equally, DSLR lenses ideally need to be optically corrected, too, to provide an undistorted viewfinder image. However, CSCs use an entirely electronic pathway for both viewing and reproduction. Therefore, logically their lenses don't need to be optically



## Fujifilm

Fujifilm's X-mount range now numbers 20 lenses: 11 primes and nine zooms. While this includes two entry-level XC zooms, the bulk of the line-up is aimed at the upper end of the market, meaning enthusiast photographers are particularly well catered for. Crucially, Fujifilm has made a very carefully considered lens range that covers all the most important bases, and is arguably the best of any for APS-C cameras. In general, the lenses are optically very fine, if often relatively expensive.



## Nikon

Nikon's UK website currently lists fully 90 F-mount Nikkor optics of all types, including 53 primes, 34 zooms and three teleconverters. Of these, 64 are full-frame FX optics, and 23 are DX (but this includes five iterations of its 18-55mm kit zoom). Ten of the FX lenses, however, are older manual-focus primes. In comparison, the line-up for its 1-system CSCs is small, although there's still a bit more choice than Canon's EF-M range.



## Olympus

Olympus's Micro Four Thirds line-up covers three strata. The entry-level M.Zuiko line includes seven variable-aperture zooms and the tiny 17mm f/2.8 pancake prime, while the Premium range consists of six compact and relatively affordable high-quality primes. The real stars, though, are five lenses in the Pro line, which includes three excellent f/2.8 zooms covering 7mm to 150mm (14mm to 300mm equivalent). At the other end of the scale, two cheap-and-cheerful Body Cap Lenses are officially described as 'accessories'.



corrected in the same way, but can instead use software to do the job. This means the designers can concentrate on minimising all other aberrations optically, particularly peripheral ones such as coma and astigmatism that cause softness in the corners of the frame. Crucially, the net result is usually just as good, if not better, in terms of the final image.

The key point is that using software distortion correction gives designers more options, allowing lenses to be made in some combination of smaller, lighter, cheaper or higher quality.

Indeed some recent DSLR lenses are following suit, and concentrate on maximising sharpness in the corners at the expense of higher distortion. However, this can cause problems with composition, for example judging when your horizons are straight.

Most systems also correct some other aberrations in-camera.

Almost all new cameras now correct lateral chromatic aberration (colour fringing towards the corners of the frame), to give cleaner-looking images. Fujifilm also corrects lens vignetting in the camera's JPEG output. Usually, the correction parameters are also embedded into raw files for use by conversion software.

AP



## Panasonic

Panasonic's Micro Four Thirds range is a little larger than Olympus's, but perhaps less logically arranged. At the top end are two excellent f/2.8 zooms (12-35mm and 35-100mm); a high-end 100-400mm super-telephoto; and a set of desirable, but expensive Leica-branded primes. In the mid-range there's a good set of zooms covering 7mm to 300mm (14mm to 600mm equivalent) and some very decent inexpensive fast primes, including a classic 20mm f/1.7 'pancake'.



## Pentax

The current Pentax K-mount range includes the largest number of lenses specifically designed for APS-C DSLRs. Its 27-strong DA line-up has everything from an unusual fisheye zoom to long telephoto primes, with a set of lovely compact 'Limited' primes being a particular highlight. The full-frame FA range is rather smaller at the moment, but covers the most important bases. There are f/2.8 zooms ranging from 15mm to 200mm, a 150-450mm telezoom and some nice primes including two macros.



## Sony

Sony's large lens line-up is split across two mounts. The DSLR Alpha mount range includes 19 full-frame lenses, alongside 12 for APS-C. However the company is now mainly concentrating on its E-mount CSC system. For this it currently makes 15 APS-C lenses catering for beginners and enthusiasts, and 17 full-frame FE optics that are mostly aimed at professional users, with premium price tags that reflect the excellence of their optics.



## A personal story

Ten years ago, I was a committed full-frame DSLR user. I'd built up a small collection of lenses while shooting 35mm film, and Canon's original EOS 5D allowed me to continue to use them seamlessly, rather than accept the focal length multiplier imposed by APS-C. The camera itself also offered excellent resolution at 13 million pixels, and could shoot at sensitivities up to ISO 3,200, matching the fastest film I ever used while vastly exceeding it in terms of image quality.

When the first small CSCs appeared, however, I saw an opportunity to get a good fraction of the image quality in a much smaller package. The Panasonic GF1 and 20mm f/1.7 pancake lens offered a hitherto unprecedented prospect. With very good image quality up to ISO 800, it was a pocket-sized combination that could be used indoors without flash. When Olympus released its lovely 45mm f/1.8, this merely amplified its appeal.

## A CSC conversion

To cut a long story short, things have snowballed since then, and I now own an Olympus OM-D E-M5 II and a full set of the firm's f/2.8 pro zooms, along with assorted small primes. In truth, it's the lenses that have driven my conversion as much as the cameras: I've found I can cover a wider range of photographic opportunities while carrying a smaller and lighter bag of kit. This does come with other compromises. Both APS-C and full-frame cameras have technically better sensors in terms of resolution, noise and dynamic range. But this is a personal choice I've been happy to make – it's not 'right' or 'wrong', it just works for me. But I find it difficult to imagine buying another DSLR.

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## Resolution confusion

**Q** I used to be a regular AP reader, and have recently got back into photography after a break of many years; hence, I have returned to reading the magazine, too. I've now decided to buy a new camera, and enjoy reading your thorough but not too-technical reviews. Only one thing confused me in your camera test articles: In the section called 'Resolution', I couldn't quite understand what the little pictures meant. But then I looked at the AP website and saw versions that made much more sense to me. Perhaps you might consider showing them in the magazine in a similar manner?

**Peter Atkinson**

**A** Our resolution chart has a pattern of converging lines that at some point will always blur together when they exceed the camera's ability to resolve them; the small images



Our resolution chart has a pattern of converging black and white lines



included in our camera reviews are supposed to illustrate the point where this occurs. This means that we're printing highly magnified crops from the test image files, and the illustration above shows how these relate to the actual test pattern, which is itself a small part of the overall frame. However, one problem with this approach is that it can lose the overall context of the test. So we're currently working on a new display which we hope will be more informative and useful.

**Andy Westlake**

## Freshly charged but no flash

**Q** I use an FL-50R flash unit with my Olympus E-5 DSLR. But the other day when I put a newly charged set of Ni-MH AA batteries into it, the flash-ready light took a long time to light up, and when it eventually did, it started to blink. I wasn't able to get a response out of the unit either by taking a test photo or pressing the test flash button. The LCD display, however, looks fine, and I was able to change the mode settings and the flash zoom motor works. Is this enough information to work out what the problem might be?

**Dennis Foley**

**A** The most likely cause of the problem is one or more faulty batteries. If the batteries are fairly old and have been recharged many times, or even allowed to go completely flat for an extended period, then they can develop a high internal impedance. This means there is enough voltage to drive the circuitry in the flash so the LCD display and flash zoom work, but there isn't enough current



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flowing to fully charge the main capacitor. The culprit could be a single duff battery, so swapping out one at a time is a good idea to eliminate the problem. A tell-tale sign is that while a bad battery might pass muster in a battery tester fresh out of the charger, an hour or two later that same battery would register a noticeably lower rating than a good battery charged at the same time. If you find it's not the batteries, then the problem would have to be internal and that's really only a job for a qualified service centre.

**Ian Burley**

## A question of storage

**Q** I read both that it's possible and impossible to use networked storage with Adobe Lightroom. I am seriously considering the purchase of a Network Attached Storage (NAS) box, but I'm not actually sure I can use it with Lightroom, which I use to manage my image archive as well as for image-editing workflow. I'm also not sure if the box, attached over the

network, would work fast enough compared to the standard disk drives in my PC mini tower, which is my current arrangement. Can you provide any reassurance?

**Vanessa Ritchie**

**A** Adobe Lightroom runs a version of the SQLite relational database management system. Lightroom catalogues are databases created and managed by Lightroom this way. Fast and reliable storage is required, and this implies the database must be hosted on a drive attached to the same CPU that runs Lightroom. That's why you have read that a Lightroom database can't be on a networked drive. What's confusing is that the catalogue database doesn't contain your original master images and it's absolutely fine for those to be stored on a networked drive like an NAS. If your NAS is connected to your local area network (LAN) via a fast connection (like Gigabit Ethernet) and the router is efficient, then the available transfer bandwidth will not

noticeably compromise the rate at which images can be imported to or read from the NAS. So if your setup is optimal, you should not experience any performance compromises when using a NAS to store your Lightroom master image archive. And of course, a properly multi-disk RAID-configured NAS will protect your data from drive failure, though you should also regularly back the NAS up as a fail-safe!

**Ian Burley**

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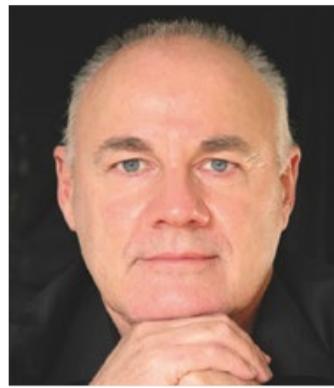
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# My life in cameras

Tony Worobiec, award-winning travel and landscape photographer, reveals the cameras that mean the most to him

## Tony Worobiec



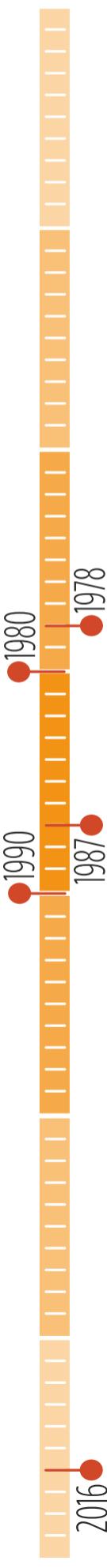
A Fellow of the RPS, Tony's work is in the permanent collection of the Fox Talbot Museum and numerous private collections. Tony and his wife Eva specialise in shooting the depopulating areas of Nebraska, North

and South Dakota and Montana. He's written 15 books, and the latest, *Photographing Landscape Whatever the Weather*, was published in April. See [www.tonyworobiec.com](http://www.tonyworobiec.com).

**1978 Zenit E** This Soviet-era camera was built like a tank and was surprisingly good. I was an art teacher at the time, and I'd shoot slides to help students find interesting locations near our school for project work. The Zenit was great for that. From around 1980, I started venturing more into photography for its own sake.



**1980 Canon A-1** This was my first interchangeable-lens camera, and it had the bonus of an electronically controlled auto-exposure mode. It was very reliable, and really helped me to develop my interest in black & white work (I had switched to black & white film from slides). I also completed both my RPS Associateship and Fellowship with this camera; it was that good.



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**1987 Mamiya 645** I then switched to medium-format cameras, as I wanted to get increased quality and larger formats for my landscape work. The 645 was affordable, had interchangeable lenses and interchangeable viewfinders, and the waist-level viewfinder sometimes came in handy. I particularly liked the superb 45mm wideangle lens, and the Mamiya definitely moved me on photographically.



**1990 Pentax 67** Sadly, the Mamiya was stolen from my car. With the insurance money, I bought a Pentax 67. It looked and operated like a 35mm SLR, with good wideangle and macro lenses, but the shutter was incredibly loud. It was great for montage work.



**2016 Canon EOS 5DS** I bought a Mamiya 7 rangefinder, which was perfect for travel, before moving on to digital SLRs with the Canon 5 series. I currently use the Canon EOS 5D Mark III and the 5DS. The 5DS is a fine camera but does have its limitations – I don't recommend using a higher ISO than 800 and it works best on a tripod – but the picture quality is amazing.



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**Professor Newman on...**

## The ultra-wide phenomenon

What are the technological developments that have led to building and using wider and wider lenses?

I've been dabbling in photography for more than 50 years now. When I started, a 'wideangle' lens was a 35mm on the standard 35mm 24 x 36mm frame, yielding a horizontal angle of view of 54.4°. When I came to build my first system, the state of the art had advanced to allow a 28mm lens – that is, a field of view of 65.4°. By the time I got my first digital camera, 28mm was no longer considered ultra-wide. These days, a standard zoom is considered inadequate if it does not have a widest focal length of 24mm (or equivalent) with an angle of view of 73.7°. Real 'wideangle' is wider still. Nikon produces an f/1.8 lens with a focal length of 20mm (84.0°). Ultra-wide zooms routinely start at 14-16mm (104.3° to 96.7°). Furthermore, these are high-quality lenses that, even wide open, give good sharpness from corner to corner. I have such a lens. It is not my most used lens, because it's large and inconvenient in several ways, but the fact it exists at all is something I find quite remarkable.

I remember reading in awe an *Amateur Photographer* (AP) article

### 'A perfectly normal desktop PC can compute even a complex lens in a few hours'

in the 1960s about the launch of the Zeiss Hologon 15mm f/8 lens. This lens was, like my zoom, huge and unwieldy. Furthermore, its rear element was so close to the film plane that it couldn't be used in an SLR. Zeiss sold it built into a special camera, the thought being that this lens would be in such great demand that photographers would be willing to buy an additional camera just for the privilege of owning it. Unfortunately, Zeiss was wrong, and most of the 500 lenses went unsold. Eventually, Leica bought them as a job lot and converted them to fit its M-mount rangefinders. Still, that doesn't detract from the wonder of the lens – a rectilinear lens with a 104.4° angle of view. The AP article was very clear that this was a landmark in optical design, yet now it is commonplace. How has this come about? It's a combination of a number of technological advances.

One is the enormous increase in availability of computing power.

The Hologon was a computer-designed lens – and in fact this was part of the general air of wonder in AP's article about it. The lens's unique Siamesed middle element was there because that was the best configuration, according to the computer. At the time, Zeiss operated a single super-computer for optical calculations. It was a state-of-the-art and expensive machine. It had somewhat less computational power than a modern mobile phone. Consequently, Zeiss as a company was very choosy about which projects it scheduled on the machine, and how much computer time was expended. This tended to limit the design of complex lenses, or ones that would require a great many optimisation cycles. By contrast, nowadays computer power is cheap and available. A perfectly normal desktop PC can compute even a complex lens in a few hours.

The second factor is the much improved anti-reflection coatings, which allow more complex optical formulae. The Hologon was a three-element (or maybe four, depending on how you count the Siamesed inner element) design. A modern ultra-wideangle lens may have upwards of ten elements. Improved coatings allow such complex lenses without unacceptable contrast loss.

The final factor is the size of the market. Although DSLR sales worldwide are declining, they are still at a far higher level than where camera sales were 50 years ago. The larger market allows higher spend on research and development, which makes feasible what was previously infeasible.



**A focal length of 14mm on full frame allows a wide field of view and an exaggerated perspective**

**Bob Newman** is currently Professor of Computer Science at the University of Wolverhampton. He has been working with the design and development of high-technology equipment for 35 years and two of his products have won innovation awards. Bob is also a camera nut and a keen amateur photographer

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CANON EOS 7D COMPLETE WITH ALL ACCESS.....	MINT BOXED £395.00
CANON EOS 5D BODY WITH ALL ACCESS .....	MINT £365.00
CANON EOS 30D COMP WITH ALL ACCESS .....	MINT BOXED £129.00
CANON EOS 50D BODY COMPLETE WITH ALL ACCESS .....	MINT BOXED £299.00
CANON 580 EX SPEEDLITE.....	MINT-CASED £199.00
CANON 580 EX MKII SPEEDLITE.....	MINT-CASED £225.00
CANON 550 EX SPEEDLITE.....	MINT-BOXED £110.00
CANON BG-E7 BATTERY GRIP FOR EOS 7D.....	MINT BOXED £75.00
CANON BG-E7 BATTERY GRIP FOR EOS 7D.....	ENEW++ BOXED £59.00
CANON BG-E4 BATTERY GRIP FOR EOS 5D.....	MINT BOXED £49.00
FUJI XT 1 BODY COMPLETE USED ONCE AS NEW.....	MINT BOXED £575.00
FUJI X PRO 1 HANDGRIP GENUINE FUJI.....	MINT BOXED £69.00
FUJI XM1 LEATHER HALF CASE GENUINE FUJI.....	MINT BOXED £35.00
FUJI X20 COMPLETE WITH ALL ACCESSORIES LOW USE.....	MINT BOXED £225.00
FUJI X10 COMPLETE WITH ACCESSORIES.....	MINT BOXED £195.00
FUJI CASE FOR X10,X20,X30 GENUINE FUJI .....	MINT £30.00
FUJI 18mm f2 R FUJINON BLACK LENS .....	MINT BOXED £245.00
FUJI FIT FC-E3 OFF CAMERA FLASH CORD.....	ENEW £12.00
FUJI FINEPIX S3 PRO BODY LOW USE.....	MINT BOXED £145.00
NIKON DF KIT & 50mm f1.8 AF-S ONLY 59 ACTUATIONS ...	MINT BOXED £1,499.00
NIKON D700 BODY WITH CHARGER, BATT, etc.....	MINT - £575.00
NIKON D600 BODY COMPLETE ONLY 3011 ACTUATIONS .....	MINT BOXED £799.00
NIKON D7000 BODY ONLY 1202 ACTUATIONS .....	MINT BOXED £395.00
NIKON D3200 BODY & 18-55mm VR MK II LENS & GRIP.....	MINT - £245.00
NIKON D3100 BODY & 18-55 VR LENS .....	MINT - £199.00
NIKON D80 BODY COMPLETE WITH ALL ACCESS .....	MINT - £165.00
NIKON D80 BODY COMPLETE WITH ALL ACCESS .....	ENEW - £145.00
NIKON MB-D10 BATTERY GRIP FOR D700, D300S, D300 .....	MINT BOXED £69.00
NIKON MB-D16 BATTERY GRIP FOR D750 .....	MINT BOXED £175.00
NIKON SB800 SPEEDLIGHT .....	MINT BOXED £169.00
NIKON SB700 SPEEDLIGHT .....	MINT BOXED £199.00
SIGMA EM-140 DG NA - ITTL MACRO FLASH .....	MINT BOXED £225.00
SIGMA EF 610 DG SUPER FLASH NIKON FIT .....	MINT BOXED £95.00
SIGMA EF-530 DG ST ELECTRONIC FLASH ITTL NIKON FIT .....	MINT BOXED £75.00
OLYMPUS 12mm f2 ZUIKO DIGITAL ED 4/3RDS.....	MINT £399.00
OLYMPUS 45mm f1.8 M ZUIKO DIGITAL MICRO 4/3RDS.....	MINT £125.00
OLYMPUS 60mm f2.8 MACRO ED MICRO 4/3RDS.....	MINT £275.00
PENTAX Q WITH 01 STANDARD PRIME LENS 8.5-40.5.....	MINT-BOXED £195.00
PANASONIC 45-75mm F4.5-6.3 LUMIX G X VARIO M 4/3RDS.....	MINT £219.00
SIGMA 10-20mm F4.5-6.3 DC EX HSM OLYMPUS 4/3RDS.....	MINT+HOOD £245.00
OLYMPUS 12mm f2 MACRO ZUIKO DIGITAL ED 4/3RDS.....	MINT CASED £365.00
OLYMPUS 70 - 300mm F4.5-6 ZUIKO DIGITAL ED 4/3RDS.....	MINT £225.00
OLYMPUS EC-20 TELECONVERTER FOR 4/3RDS.....	MINT CASED £245.00
OLYMPUS EX - 25 EXTENSION TUBE 25MM .....	MINT CASED £95.00
OLYMPUS HLD-4 BATTERY GRIP FOR E3 BODY.....	MINT £85.00
OLYMPUS HLD-5 BATTERY GRIP FOR E620 BODY .....	MINT £39.00
OLYMPUS HLD-6 BATTERY GRIP FOR OM-D EM1.....	MINT BOXED £129.00
OLYMPUS FL-14 FLASH UNIT .....	ENEW++ BOXED £69.00
OLYMPUS FL-40 FOR OLYMPUS DIGITAL.....	MINT BOXED £59.00
PAN-F1000 LUMIX DMC F2200 COMPLETE ALL ACCESS .....	MINT BOXED £225.00
PANASONIC GF1 BODY COMPLETE .....	MINT-BOXED £95.00
PANASONIC GF2 BODY COMPLETE WITH ALL ACCESS .....	MINT BOXED £145.00
PANASONIC DMW-VF1 FINDER FOR PANASONIC.....	MINT BOXED £89.00
LEICA 14 - 50 D 12.8/3.5 LUMIX VARIO ELMARIT 4/3Rds .....	MINT £175.00
SIGMA 30mm F2.8 DN MACRO 4/3RDS .....	MINT BOXED £115.00
SONY DSC-HX90V COMPLETE VERY LOW USE.....	MINT BOXED £275.00
SONY DT-30mm F2.8 MACRO SAM LENS .....	MINT BOXED £115.00
SONY ALPHA HVL-F36AM FLASH GUN .....	MINT CASED £129.00

## Canon Autofocus, Digital Lenses, Canon FD

CANON 16 - 35mm f2.8 USM "L" .....	MINT BOXED £675.00
CANON 16 - 35mm f2.8 USM "L" MK 2 .....	MINT BOXED £875.00
CANON 17 - 40mm F4 USM "L" .....	MINT BOXED £385.00
CANON 24 - 70mm F2.8 USM "L" MKI .....	MINT BOXED AS NEW £695.00
CANON 28 - 80mm f2.8/4 USM "L" .....	ENEW++-CASED £375.00
CANON 28 - 300mm f3.5/5.6 USM "L" IMAGE STABILIZER MINT-BOXED £1,275.00	
CANON 70 - 200mm f2.8 USM "L" IMAGE STAB + T/COLLARMINT-BOXED £675.00	
CANON 70 - 200mm f2.8 USM "L" IS IMAGE STAB MIK1 .....	MINT CASED £799.00
CANON 70 - 200mm f2.8 USM "L" .....	MINT BOXED £745.00
CANON 100 - 400mm f4 USM "L" IS IMAGE STABILIZER .....	MINT BOXED £765.00
CANON 14mm f2.8 USM "L" .....	MINT-BOXED £795.00
CANON 300mm f4 USM "L" IMAGE STABILIZER .....	MINT CASED £799.00
CANON 28 - 135mm f3.5/5.6 USM "L" IMAGE STABILIZER MINT-BOXED £1,275.00	
CANON 28mm 12.8 E/F .....	MINT £195.00
CANON 50mm f1.8 MARK 1 (VERY RARE NOW) .....	MINT £135.00
CANON 50mm f1.8 MK II .....	MINT- £29.00
CANON 85mm f1.8 USM .....	MINT BOXED £195.00
CANON 100mm f2 USM .....	MINT - £265.00
CANON 100mm f2 USM .....	ENEW++ £225.00
CANON 100mm f2.8 USM MACRO .....	MINT BOXED £295.00
CANON 17 - 55mm f2.8 USM IMAGE STABILIZER .....	MINT BOXED £395.00
CANON 18 - 55mm f3.5/6.3 MK II .....	MINT £59.00
CANON 18 - 200mm f3.5/6-S IMAGE STABILIZER .....	MINT-HOOD £299.00
CANON 28 - 105mm f3.5/4.5 USM .....	MINT £125.00
CANON 28 - 135mm f3.5/5.6 USM IMAGE STABILIZER .....	MINT BOXED £155.00
CANON 55 - 200mm f4.5/5.6 USM MK III .....	MINT BOXED £59.00
CANON 75 - 300mm f4.5/5.6 MKII .....	MINT £99.00
CANON 100 - 300mm f4.5/5.6 USM .....	MINT- £95.00
KENKO DG CANON FIT TUBE SET 12,20,36MM .....	MINT BOXED £99.00
CANON EF 1.4X EXTENDER MK I .....	MINT £125.00
CANON EF 1.4X EXTENDER MK II .....	MINT CASED £185.00
CANON EF 2.0X EXTENDER MK I .....	MINT BOXED £175.00
CANON EF 2.0X EXTENDER MK II .....	MINT BOXED £175.00
CANON EF 2.0X EXTENDER MK II .....	MINT CASED £179.00
KENKO DG CANON FIT TUBE SET 12,20,36MM .....	MINT - £99.00
TELEPLUS PRO 300 DGX 2.0 TELECONVERTER .....	MINT BOXED £159.00
TELEPLUS MC7 1 ELEMENT 2X TELECONVERTER .....	MINT- £75.00
TELEPLUS 2X CONVERTER CANON A/F .....	MINT - £45.00
CANON ANGLE FINDER B .....	MINT BOXED £79.00
CANON TC - 80mm REMOTE RELEASE/ TIMER FOR EOS .....	MINT BOXED £75.00
SIGMA 4.5mm 12.8 EX DC HSM CIRCULAR FISHEYE .....	MINT CASED £475.00
SIGMA 10mm f2.8 EX DC FISHEYE HSM .....	MINT BOXED £345.00
SIGMA 17 - 35mm f2.8/4 EX HSM ASPHERIC .....	MINT - £179.00
SIGMA 18 - 50mm f2.8 EX DC SLR GLASS .....	MINT-BOXED £145.00
SIGMA 170 - 500mm f5/6.3 APO COMP WITH HOOD .....	MINT-BOXED £299.00
TAMRON 28 - 300mm f3.5/6.3 VLD DI 62 AIP CONTROL MINT BOXED £375.00	
TOKINA 100mm f2.8 MACRO AT-X PRO + HOOD .....	MINT - £245.00
TOKINA 10 - 17mm f3.5/4.5 AT-X DX FISHEYE (LATEST) .....	MINT £299.00
TOKINA 11 - 16mm f2.8 AT-X - PRO ASPHERICAL .....	MINT BOXED £279.00

## Contax 'G' Compacts & SLR & Ricoh

CONTAX RX BODY .....	MINT BOXED £199.00
CONTAX ARIA BODY .....	MINT BOXED £225.00
CONTAX RTA BODY .....	MINT BOXED £115.00
CONTAX 45mm f2.8 TESSAR T* PANCAKE LENS + HOOD .....	MINT £195.00
CONTAX CARL ZEISS 50mm f1.7 .....	MINT BOXED £115.00
CONTAX CARL ZEISS 50mm f1.4 MM .....	MINT - £215.00
CONTAX CARL ZEISS 28mm f2.8 MM .....	MINT BOXED £245.00
CONTAX CARL ZEISS 85mm f2.8 .....	MINT BOXED £325.00
CONTAX CARL ZEISS 85mm f1.4 .....	MINT CASED £399.00
CONTAX 300mm f4 TELE TESSAR MM .....	MINT BOXED £295.00
CONTAX MUTAR II 2X TELECONVERTER .....	MINT BOXED £125.00
CONTAX TLA 280 FLASH .....	MINT - £59.00
CONTAX TLA 280 FLASH UNIT .....	MINT BOXED £75.00
CONTAX TIX TITANIUM COMPACT + LEATHER CASE .....	MINT CASED £299.00
CONTAX 21mm f2.8 BIIGON BLACK WITH FINDER .....	MINT BOXED £499.00
CONTAX 28mm f2.8 BIIGON "G" + HOOD, CAP .....	MINT BOXED £275.00
CONTAX 90mm f2.8 SONNAR "G" BLACK + B&W FILTER .....	MINT BOXED £245.00
CONTAX 90mm f2.8 SONNAR "G" + HOOD, FILTER, CAP .....	MINT CASED £195.00
CONTAX 35 - 70mm f3.5/5.6 "G" VARIO SONNAR T* .....	MINT BOXED £395.00
CONTAX TLA 140 FLASH FOR G1/G2 .....	MINT CASED £65.00
CONTAX TLA 200 FLASH FOR G1/G2 .....	MINT CASED £69.00
CONTAX TLA 200 FLASH FOR G1/G2 BLACK .....	MINT BOXED £79.00
CONTAX GDI DATABASE FOR CONTAX T3 .....	MINT-BOXED £69.00

## Leica "M", "R", & Screw & Rangefinder

LEICA M7 BODY LATE MODEL .....	MINT BOXED AS NEW £1,395.00
LEICA M3 BODY COMPLETE WITH CASE .....	ENEW++ £595.00
LEICA M3 BODY .....	ENEW++ £399.00
LEICA M2 BODY WITH MR METER REALLY NICE .....	ENEW++-CASED £675.00
LEICA M2 BODY .....	ENEW++ £399.00
LEICA M1 BODY .....	ENEW++ CASED £499.00
LEICA MDA BODY SER NO 12659XX CIRCA 1970 .....	MINT - £425.00
LEICA MDA BODY SER NO 14111XXCIRCA 1975-76 .....	ENEW++ £399.00
REID III WITH TAYLOR HOBSON 50mm f2 SUPERB .....	MINT-CASED £1,595.00
LEICA IIIC BODY WITH LEICA 5cm f2 .....	MINT-CASED £1,195.00
LEICA IIIC STANDARD WITH 5CM F2 COLL SUMMITAR .....	ENEW++ £365.00
LEICA III BODY REALLY NICE CLEAN BODY WITH CASE .....	MINT - £295.00
LEICA IIC BODY WITH CASE .....	ENEW++ £195.00
LEICA IIC RED BLIND RARE .....	ENEW++ £345.00
LEICA CL BODY .....	ENEW++ £299.00
LEICA CL BODY .....	MINT - £445.00
LEICA C LUX 2 CLOSE ALSO LEATHER CASE .....	MINT BOXED £299.00
ZEISS 21mm f4 BIIGON ZM .....	MINT BOXED AS NEW £699.00
LEICA 28mm f2.8 ELMARIT ASPHERIC 6 BIT ("UNUSED") .....	MINT BOXED £1,095.00
LEICA 35mm f2.8 SUMMICRON ASPH BLACK 6 BIT LATEST MODEL .....	MINT BOXED £1,495.00
LEICA 35mm f2.8 SUMMICRON CHROME M FIT .....	ENEW++ £357.00
LEICA 35mm f2.8 SUMMICRON CHROME M FIT .....	MINT £1,095.00
LEICA 35mm f3.5 SUMMARON M WITH LEICA FILTER .....	MINT - £325.00
LEICA 35mm f3.5 SUMMARON M WITH SPECS .....	MINT - £395.00
LEICA 50mm f2.8 SUMMICRON M LATEST 6 BIT .....	MINT BOXED AS NEW £745.00
LEICA 50mm f2.8 SUMMICRON CHROME M 50mm f2 .....	MINT BOXED AS NEW £1,195.00
LEICA 5cm F3.5 COLLAPSABLE ELMAR FOR M1339# .....	MINT - £299.00
LEICA 5cm f3.5 ELMAR RED SCALE .....	MINT - £345.00
LEICA 75mm f2.8 SUMMICRON APO 6 BIT LATEST .....	MINT BOXED £1,400.00
LEICA 90mm f2.8 ELMARIT M 11807 .....	MINT BOXED AS NEW £799.00
LEICA 90mm f2.8 SUMMARIT M 6 BIT LATEST + HOOD .....	MINT CASED £799.00
LEICA 9cm, 14 ELMAR COLL FOR M .....	MINT - £175.00
LEICA 135mm f4.5 HEKTOR .....	ENEW++ £75.00
VOIGTLANDER 25mm f4 SNAPSHOT SKOPAR + FINDER .....	MINT BOXED £275.00
VOIGTLANDER 35mm f1.2 NOKTON + HOOD M ASPHERIC .....	MINT - £595.00
VOIGTLANDER 15mm FINDER .....	MINT - £79.00
VOIGTLANDER BESSA R GRIP FOR R.R2,R3 ETC .....	MINT BOXED £49.00
LEICA UNIVERSAL POLARISING FILTER KIT M13356 .....	MINT BOXED £199.00
LEICA M GRIP FOR M7/M6/M6TTL ETC .....	MINT - £49.00
LE	



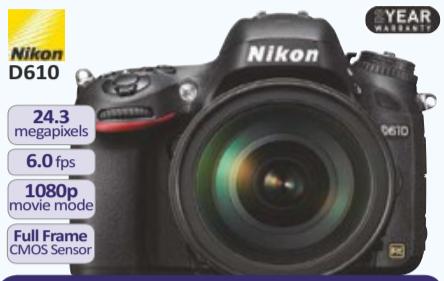
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photographic

## What a customer said about us ...

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**THE WEX PROMISE:** Over 17,000 Products | Free Delivery on £50 or over\*\* | 30-Day Returns Policy†



**D610** From £1299

D610 Body  
D610 + 24-85mm



**D750** From £1699

D750 Body  
D750 + 24-85mm  
D750 + 24-120mm



**D500** Body £1729

New D500 Body  
New D500 + 16-80mm



**D810** From £2139

D810 Body £2139

### The new Nikon D5 – A flagship power

Equipped with Nikon's incredible next-generation 153-point AF system, the D5 keeps you on track whether you're shooting the race or the red carpet. Coverage is exceptionally wide, and a new buffer allows up to 200 NEF (RAW) images to be captured during one high-speed burst. New image and metering sensors deliver phenomenally accurate subject recognition and image detail. The highest expanded sensitivity in Nikon's history frees you to shoot from bright sunlight to astronomical twilight. And for moviemakers who go to extremes, D-Movie now enables high-definition 4K/UHD movies to be recorded in-camera.

New D5 Body £5499



New D5 Body £5499



For 2-year warranty on any camera and lens kit simply register your new Nikon within 30 days of purchase. Offer applies to UK & Republic of Ireland stock only. Call 0800 597 8472 or visit [www.nikon.co.uk/register](http://www.nikon.co.uk/register)



**A7R II** £2999

A7R II Body £2999  
A7S Body £2899  
A7R Body £999  
A7 II Body £1349  
A7s Body £1799



**A6300** From £1069

New A6300 Body £1069  
New A6300 + 16-50mm £1249  
A6000 Body £419  
A6000 + 16-50mm PZ £499



**A68** From £549

A68 Body £549  
A68 + 18-55mm £629  
A77 II Body £999  
A77 II + 16-50mm £1399  
A58 + 18-55mm £449  
+ 55-200mm



**GH4R** From £999

GH4R Body £999



**GX8 + 12-60mm** £869

GX8 + 12-60mm £869

#### RECOMMENDED FULL FRAME E-MOUNT LENSES:

New Sony FE 85mm f1.4 G £1649  
New Sony FE 24-70mm f2.8 G £1999  
Sony FE 24-70mm f4.0 ZA OSS ZA Vario-Tessar Carl Zeiss T\* £899  
Sony FE 70-200mm f4.0 G OSS £1249

£1649  
£1999  
£899  
£1249

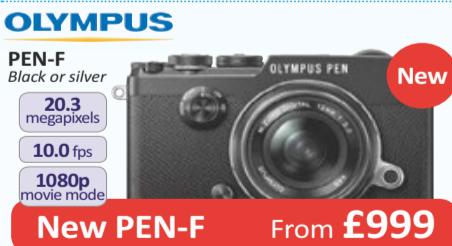
#### RECOMMENDED A-MOUNT LENSES:

Sony 70-400mm f4-5.6 G SSM II £1999  
Sony 70-300mm f4.5-5.6 G SSM £689  
Sony 28-75mm f2.8 SAM £599  
Sony 35mm f1.8 DT SAM £149

£229  
£378  
£279  
£199

#### RECOMMENDED LENSES:

Panasonic 14-45mm f3.5-5.6 £229  
Panasonic 100-300mm f4.0-5.6 LUMIX G Vario £378  
Panasonic 45-175mm f4.0-5.6 LUMIX G X Vario £279  
Panasonic LUMIX 45-150mm f4.0-5.6 ASPH OIS £199



**New PEN-F** From £999

New PEN-F from £999  
OM-D E-M1 Body £849  
OM-D E-M1 + 12-50mm £969  
OM-D E-M1 + 12-40mm £1199  
OM-D E-M5 II Body £749  
OM-D E-M5 II + 12-40mm £1299  
OM-D E-M5 II + 12-50mm £849

RECOMMENDED LENSES:  
Olympus 75mm f1.8 £620  
Olympus 12-40mm f2.8 Pro £719  
Olympus 40-150mm f2.8 Pro £1099



**E-M10 II** From £449

OM-D E-M10 II Body £449  
OM-D E-M10 II + 14-42mm £549  
OM-D E-M10 + 14-150mm II £549

£620  
£719  
£1099



**K-1** From £1599

New K-1 Body £1599  
K-3 II Body £709  
K-3 II + 18-55mm £789  
K-3 II + 18-135mm £1009  
K-3 II + 16-85mm £1099  
K-50  
K-S2  
from £389  
from £469



**X-T2** From £1399

New X-T2 Body £1399  
New X-E2S Body £549  
New X-E2S + 18-55mm £749  
X-T1 Body £795

FUJINON LENSES:  
90mm f2 R LM WR XF £669  
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100-400mm f4.5-5.6 R LM OIS WR + 1.4x teleconverter £1499



**X-Pro2** From £1349

New X-Pro2 Body £1349  
X-T10 Body £449  
X-T10 + 18-55mm + 55-200mm XF £949



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**THE WEX PROMISE:** Part-Exchange Available | Used items come with a 12-month warranty<sup>††</sup>

**Canon | PRO**  
**PARTNER**

## The new EOS 5DS – A revolution in resolution

The first of its kind in the EOS line-up, the Canon 5DS is a full-frame DSLR boasting a groundbreaking 50.6-megapixel CMOS sensor for professional photographers who want high-resolution images and extraordinary detail.

Aimed at the most demanding professionals, the 5DS R sports a low-pass cancellation filter to deliver sharpness and extraordinary clarity.

New 5DS Body £2699  
New 5DS R Body £2899



50.6 megapixels 5.0 fps 1080p movie mode

New 5DS Body £2699

5DS R Body £2899

**Canon | PRO**  
**PARTNER**

**EOS 760D**



**760D Body £549**

760D Body £549  
750D Body £529  
750D +18-55mm £579  
750D + 18-135mm £759  
700D Body £399  
700D + 18-55mm IS STM £449

**Canon | PRO**  
**PARTNER**

**5D Mark III**



**5D Mark III Body £2299**

5D Mark III Body £2299

**Canon | PRO**  
**PARTNER**

**80D**



**NEW 80D From £999**

New 80D Body £999  
New 80D + 18-55mm £1089  
New 80D + 18-135mm £1299  
70D Body £698  
70D + 18-55mm f3.5-5.6 IS STM £799

**CUSTOMER REVIEW: EOS 70D + 18-135mm IS STM**

★★★★★ 'An excellent step up'  
Adam - Portsmouth

**Canon | PRO**  
**PARTNER**

**EOS 7D MkII**



**7D Mk II Body £1179**

7D Mark II Body

**Canon | PRO**  
**PARTNER**

**EOS 6D**



**6D Body £1249**

6D Body

**Canon | PRO**  
**PARTNER**

**5D Mark III**



**5D Mark III Body £2299**

5D Mark III Body £2299

**Canon | PRO**  
**PARTNER**

**EOS 1D X Mk II**



**1D X Mk II Body £5199**

New 1D X Mk II Body

New

Read our 1D X Mk II review on  
our blog at [wex.co.uk/blog](http://wex.co.uk/blog)



## Pre-Loved cameras

Quality used cameras,  
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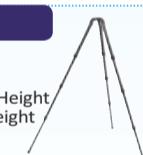
[www.wex.co.uk/pre-loved](http://www.wex.co.uk/pre-loved)

\*Excludes items marked as incomplete or for spares

### Tripods



**GT3542L**  
• 178cm Max Height  
• 16cm Min Height



**Mountaineer Carbon eXact Tripod:**  
GT1532 £499  
GT2542 £599  
GT3542L £699  
GK1542-82QD £829

### Manfrotto

Imagine More



**MT190XPRO3**  
• 160cm Max Height  
• 9cm Min Height  
**MT190XPRO3..... £129**  
**MT190XPRO4..... £139**  
**MT190CXPRO3 Carbon Fibre £229**  
**MT190CXPRO4 Carbon Fibre £235**  
**MT190XPRO3 + 496RC2 Ball Head £139**  
**MT190XPRO4 + 496RC2 Ball Head £189**

### Manfrotto

Imagine More



**Wex exclusive**  
**Befree One Travel Tripod - Red £149**  
• 130cm Max Height  
• 49cm Min Height  
**Aluminium Available in Black, Red, and Grey... from £99**

### JOBY

Hybrid GP2B

• 1000g Max Load  
• 25.7cm Height  
**Joby Tripods**  
Original £17  
Hybrid £29  
SLR Zoom... from £39  
Focus GP-8... from £79

### Flashguns & Lighting Accessories

**Canon | PRO**  
Speedlites:



430EX III-RT £219  
600EX-RT £429



MR-14EX II £499



**Nikon Speedlights:**  
SB5000 £429  
SB700 £216



**Kits:**  
R1 Close-Up £415  
R1C1 £555



**SONY Flashguns:**  
HVL-F43M £249  
HVL-F60M £429



**OLYMPUS Flashguns:**  
FL-300R £134.99  
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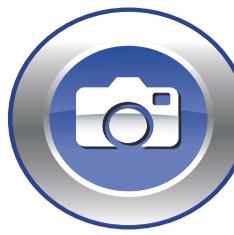
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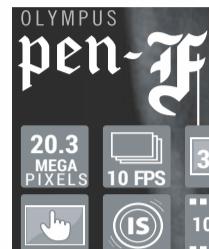
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7-14mm f/2.8 PRO	£837.50
12-40mm f/2.8 PRO	£719.00
14-42mm f/3.5-5.6 II R MFT	£269.00
40-150mm f/4.5-6.3 R M. ZUIKO	£199.00
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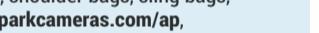
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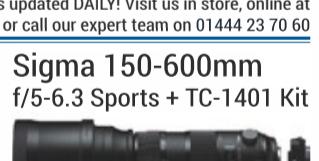
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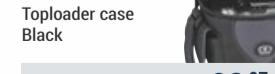
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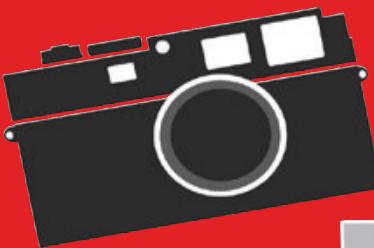
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## Ink Cartridges

We carry one of the largest ranges of printer ink cartridges in the UK, with cartridges in stock for practically every inkjet printer. We always stock **Original** cartridges, which are made by your printer manufacturer, and in many cases we also offer **Compatible** cartridges, which are usually made by a UK company called **Jet Tec**. Using **Jet Tec Compatible**s is a way of saving money, without compromising on the quality of your prints.

Here are the results from two independent ink tests that agree...

"Jet Tec's colours were superb, with single greys and blacks very close to Epson... so Jet Tec wins!"  
- Total Digital Photography Magazine

"What we're looking at here is not only the best choice of ink for the R300 printer, but also the best choice of ink in this group test, period. There's just no getting away from the superb combination of performance and pricing."  
- Computer Upgrade Magazine



## Canon

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Pixma Pro 1  
Originals:  
Set of 12  
Colours 36ml each

£229.99  
£19.99

PGI72  
Pixma Pro 10  
Originals:  
Set of 10  
Colours 14ml each

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£9.99

CLI42  
Pixma Pro 100  
Originals:  
Set of 8  
Colours 13ml each  
Compatibles:  
Set of 8  
Colours 14ml each

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£9.99

CLI8  
Pixma Pro 9000  
Originals:  
Set of 8  
Colours 14ml each  
Compatibles:  
Set of 8  
Colours 14ml each

£74.99  
£9.99

PGI9  
Pixma Pro 9500  
Originals:  
Set of 10  
Colours 14ml each  
Compatibles:  
Set of 10  
Colours 14ml each

£84.99  
£8.99

## More Canon Inks...

Originals:  
PGI520/CLI521 Set of 5  
PGI520 Black 19ml  
CLI521 Colours 9ml

£42.99  
£9.99  
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PGI525 Black 19ml  
CLI526 Colours 9ml

£42.99  
£9.99  
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PGI550 Black 15ml  
CLI551 Colours 7ml

£37.99  
£9.99  
£7.99

PGI550/CLI551XL Set of 5  
PGI550XL Black 22ml  
CLI551XL Colours 11ml

£54.99  
£11.99  
£10.99

PG540 Black 8ml  
PG540XL Black 21ml

£10.99  
£15.99

CL541 Colour 8ml  
CL541XL Colour 15ml

£13.99  
£15.99

PG545XL Black 15ml  
CL546XL Colour 13ml

£13.99  
£15.99

Compatibles:  
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CLI8 Colours 13ml

£4.99  
£3.99

PGI5/CLI8 Set of 5  
PGI520 Black 19ml

£19.99  
£4.99

CLI521 Colours 9ml  
PGI520/CLI521 Set of 5

£19.99  
£4.99

PGI525 Black 19ml  
CLI526 Colours 9ml

£19.99  
£4.99

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PGI550XL Black 25ml

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PG40 Black 28ml

£12.99  
£16.99

CL41 Colour 24ml  
PG50 Black 28ml

£12.99  
£16.99

CL51 Colour 24ml  
PG510 Black 11ml

£14.99  
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CL511 Colour 11ml  
PG512 Black 18ml

£15.99  
£13.99

CL513 Colour 15ml  
PG540XL Black 21ml

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£11.99

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PG545XL Black 15ml

£14.99  
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PG546XL Black 21ml

£12.99

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No.16 Colours 3.1ml each

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No.16XL Set of 4

£14.99

No.16XL Black 12.9ml

£11.99

No.16XL Colours 6.5ml each

£11.99

Compatibles:

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No.16 Set of 4

£3.99

No.16 Black 12ml

£3.99

No.16 Colours 12ml each

£3.99

No.18 Daisy Inks



Originals:

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No.18 Set of 4

£7.99

No.18 Black 5.2ml

£5.99

No.18 Colours 3.3ml each

£42.99

No.18XL Set of 4

£14.99

No.18XL Black 11.5ml

£14.99

No.18XL Colours 6.6ml each

£11.99

Compatibles:

£14.99

No.18 Set of 4

£3.99

No.18 Black 12ml

£3.99

No.18 Colours 12ml each

£3.99

No.24 Elephant Inks



Originals:

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No.24 Set of 6

£7.99

No.24 Colours 4.6ml each

£64.99

No.24XL Set of 6

£11.99

No.24XL Colours 8.7ml each

£11.99

Compatibles:

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No.24 Set of 6

£3.99

No.24 Black 7ml

£3.99

No.24 Colours 7ml each

£3.99

No.26 Polar Bear Inks



Originals:

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No.26 Black 6.2ml

£8.99

No.26 Colours 4.5ml each

£49.99

No.26XL Set of 4

£14.99

No.26XL Black 12.1ml

£14.99

No.26XL Colours 9.7ml each

£13.99

Compatibles:

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No.26 Set of 4

£3.99

No.26 Black 10ml

£3.99

No.26 Colours 7ml each

£3.99

T0481-T0486 Seahorse Inks



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£16.99

Compatibles:

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Set of 6

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Colours 13ml each

£3.99

CL541XL Colour 15ml

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More Epson inks >>>

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We now stock a comprehensive range of frames, mounts, albums and accessories. The full range can be viewed on our website, with detailed close-up images of each product to help you choose the perfect way to display your printed photographs. Below is just a tiny sample of what we offer:



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</div

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Your chance to enter the UK's best competition for budding amateur filmmakers

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WE'RE pleased to announce our Amateur Filmmaker of the Year (AFOY) competition for 2017. AFOY challenges you to get creative with your filmmaking, and gives you the opportunity to win some fantastic prizes worth more than £13,000 in total.

The competition is split into three

rounds, each with its own theme: Travel, Environment and People. To enter, submit a video no more than five minutes in length, of HD quality. You can shoot on any camera, and the content and editing are up to you – so long as it fits the round's theme (see below).

Visit [www.thevideomode.com](http://www.thevideomode.com)

to view the top videos, as well as the scores and a leaderboard for the overall competition. The winner will be the entrant with most points after three rounds, who will win the overall prize and the title Amateur Filmmaker of the Year 2017.

Round One (Travel) opens on 1 September, so start shooting!

## Prizes

Enter to win your share of prizes worth more than £10,000!

Here's what you could receive:

### Round One

#### Winner

Canon XC10+  
Directional Mic DM-E1

Worth £2,000

#### Runner-Up

Canon LEGRIA Mini X  
Worth £300

### Round Two

**Winner** Canon EOS 7D Mark II, EF 24-105mm f/4L IS USM, EF 50mm f/1.8 STM and EF-S 10-18mm f/4.5-5.6 IS STM  
Worth £2,475

**Runner-Up** Canon Directional Mic DM-E1 Worth £274.99

### Round Three

#### Winner

Canon EOS 5D Mark III and EF 24-105mm f/4L IS USM  
Worth £3,199

#### Runner-Up

Canon Directional Mic DM-E1  
Worth £274.99

### Overall prize

Canon EOS C100 Mark II  
and 24-105mm  
Worth £4,625

## Rounds and dates

Below is a list of the competition rounds, their themes and the dates you need to know.

To view the results, visit [www.thevideomode.com](http://www.thevideomode.com). When planning your entry, take into consideration the criteria of fulfilling the brief, creativity and technical excellence on which you'll be judged.

#### Theme

Round One: Travel

Round Two: Environment

Round Three: People

#### Opens

#### Closes

1 Sept

31 Oct

1 Nov

31 Dec

1 Jan

28 Feb

The overall winner will be announced in March 2017

**Round One: Travel** Mention the word 'travel' and most of us think of visiting an exciting new place and the adventure it brings. However, it could also be a journey of simply getting from A to B, such as a mundane commute, but seen in an entirely new perspective. Think about how your commute changes at different times of the day and during different seasons.

**Round Two: Environment** What does the environment mean to you and do you think on a local or global scale? Try thinking about your interior environment in your home or at work. Alternatively, consider your garden or another environment that is close to you.

**Round Three: People** There are endless possibilities with this round. You could shoot a documentary about a person and their life, or you could turn it into a spoof. It could be an interview with someone telling their story, interspersed with images and video clips, or you might like to view people in general by looking at different characters, ages and races, and how these people interact.



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to send us a link to your short film and to view the full terms and conditions

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COLCHESTER - 01206 573444

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GLoucester - 01452 304513

GUILDFORD - 01483 504040

HEREFORD - 01432 272655

LEAMINGTON - 01926 886166

LINCOLN (HIGH ST) - 01522 528577

LINCOLN (SILVER ST) - 01522 514131

LONDON (STRAND) - 0207 3790200

MANCHESTER - 0161 834 7500

NEWCASTLE - 0191 213 0060

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NOTTINGHAM - 0115 941 7486

PLYMOUTH - 01752 664894

PORTSMOUTH - 023 9283 9933

READING - 0118 9592149

SALISBURY - 01722 335436

SOUTHAMPTON (CIVIC TR) - 023 8033 1720

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TAUNTON - 01823 259955

WINCHESTER - 01962 866203

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**CHESTER** - 01244 326531  
**COLCHESTER** - 01206 573444  
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**GLoucester** - 01452 304513  
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**LEAMINGTON** - 01926 886166  
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# Final Analysis

**Roger Hicks considers...**

‘Gladioli #1’, 2012, by John Williamson

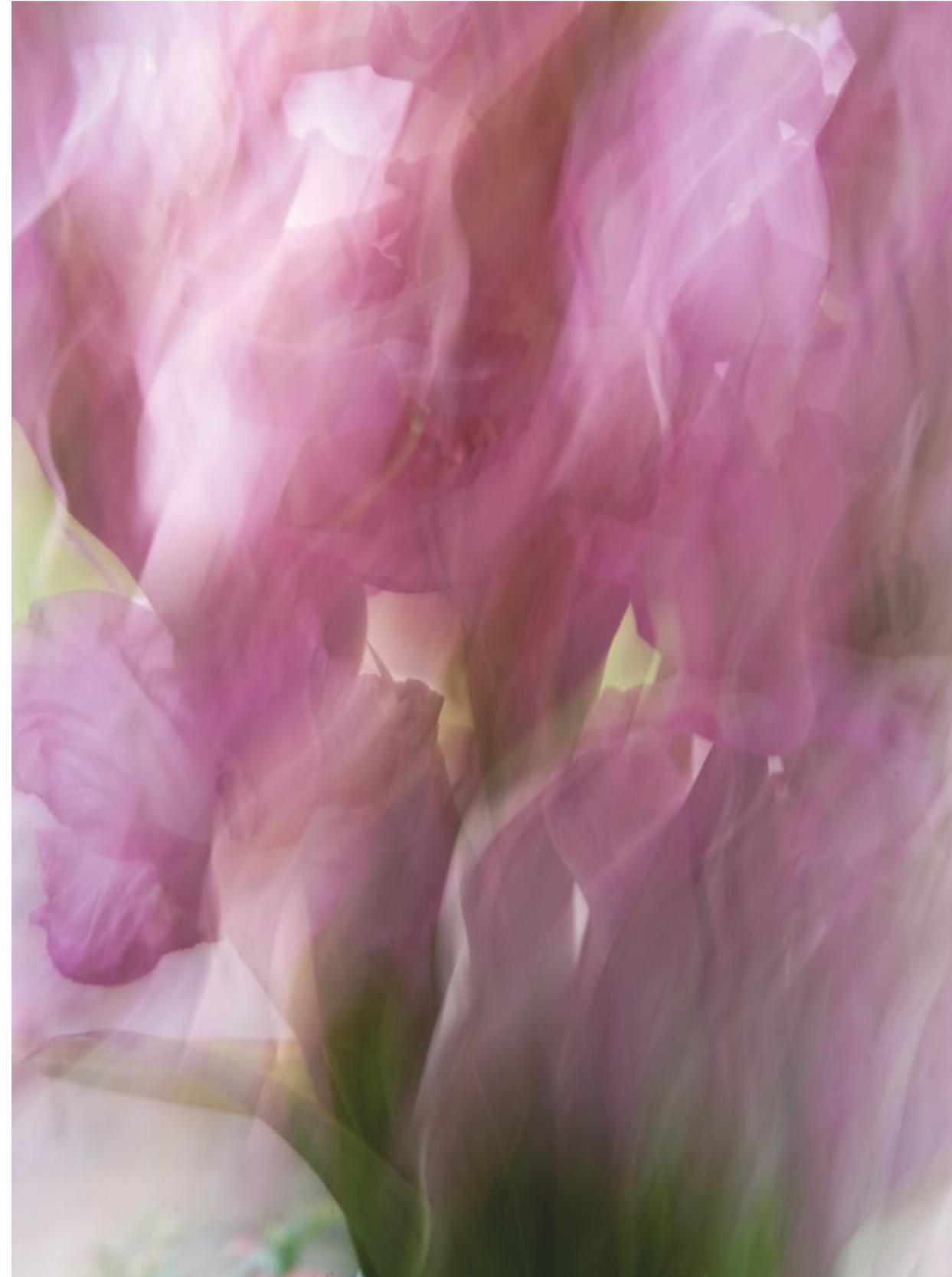
No matter what pictures I choose for this column, there are always some who find reasons to disagree with my choices. This one is easy to attack: it's not sharp, and it's too pretty.

Go to John Williamson's site ([www.johnwilliamson.co.uk](http://www.johnwilliamson.co.uk)) and you'll find his 'Moving Pictures' series, from which this is taken. 'Not sharp' is almost a straw man, but I'll bet some will dislike it because of that, even though it's deliberate. As so often, it's fairly easy to work out roughly what he's doing – the big difference is how well he does it. Many of us will have tried moving the camera during exposures but it's easier to have the idea than to execute it. Anyone who looks at this and says, 'Oh, yeah, I've done that,' should consider the often-unstated second part of the sentence, '...but it didn't work very well.'

More and more, I suspect that too many photographers spread themselves too thinly, and that those who spread themselves thinnest of all are the ones who can least afford to do so – at least if they want to make a name for themselves. If they want to have fun shooting all and everything, that's fine. But if they don't have much time for photography, then shooting all and everything is at best a recipe for the occasional good individual shot.

Williamson spreads himself about a bit, but he can afford to, because as far as I can see he's a full-time photographer. If you do it for a living, or as a substantial part of your living, you can indulge yourself more or less in passing. When you're out shooting pay-the-rent pictures, you can usually slip in a few experimental ones. What's more, because you are already accustomed to focusing tightly on ideas (for the pay-the-rent pictures) you are more likely to put real effort into your experiments, rather than just shooting a couple of pictures to see what happens and then filing the idea away in your head for future reference, along with a dozen others.

What about 'too pretty'? Isn't this a straw man, too? Not so much. Quite a lot of modern 'fine-art' photography is not exactly easy on the eye: it is almost as if it is designed to attract an intellectual reaction, rather than one that is emotional.



Yes, I have some intellectual reaction to this, especially as a photographer. Far more, though, I have a simple emotional reaction, and a somewhat soppy one at

that: the sort that half the users of social media seem to have towards cute kittens. That would make it 'too pretty' for some people.

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